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ROYAL BOTANIC GARDENS, KEW

## VIII.—CLISTOYUCCA ARBORESCENS.

During the United States Expedition in 1853–4 to survey a route for a railway to the Pacific, Dr. Bigelow saw "whole forests" of a tree-like Yucca on the Mohave Creek, California, which was described as *Yucca Draconis* var. *arborescens* by Dr. Torrey in the report on that expedition, vol. iv, p. 147 (1856). This plant, first noticed by J. C. Frémont in 1844, has now been generically separated from *Yucca* by Dr. Trelease under the name of *Clistoyucca arborescens* Trelease on the following grounds :—

*Clistoyucca*. Segments of perianth thick [sometimes ¼ in.], mostly inflexed; style wanting; nectar-glands in walls of ovary small.

*Yucca*. Segments of perianth thin and petaloid, spreading at night; style evident; nectar-glands large but mostly inactive.

The following is the synonomy of the species with references to some of the literature.

**Clistoyucca arborescens** *Trelease* in Rep. Miss. Bot. Gard. xiii. 41 (1902).

*Yucca Draconis* var. *arborescens* Torr. in Pacif. Railr. Rep. iv. 147 (1856).

*Yucca brevifolia* Engelm. in Rep. King Expl. Exped. 496 (1871); Baker in Journ. Linn. Soc., Bot., xviii. 221 (1880); Trelease in Rep. Miss. Bot. Gard. 1893, 193; Gard. Chron. 1875, iii. 492; 1886, xxvi. 18; 1887, i. 773, fig. 145.

*Yucca arborescens* Trelease in Rep. Miss. Bot. Gard. 1892, 163, tt. 5 and 49; Coville in Contrib. U.S. Nat. Herb. iv. 201, frontispiece; Sargent, Silva, x. 19, t. 502; Karsten & Schenck, Veget.-bild. xiv. tt. 37-38a (1922).

The stem is simple until it reaches a height of 8 or 10 feet and is densely clothed to the base with leaves, which at length become reflexed. A sessile terminal panicle is then developed and below it arise lateral branches which repeat the same process, except that the leaves are confined to terminal tufts. In the Gardeners' Chronicle, 1887, i. 773, fig. 145, is shown an old trunk, which has bent over and rooted at the apex and bears at the top of the arch so formed a tall branch entirely covered with leaves as in young plants. The trunk attains a diameter of 2 feet, and is remarkable for its outer part resembling the cracked areolate bark of many



(18788.) Wt. 132—21. 1,125. 2/26. Wy. & S., Ltd. Gp. 50 (4).

Dicotyledons. It bears at the base a circle of confluent roots forming a disk, which is shown in Rep. Miss. Bot. Gard. 1893, t. 9. In the Mohave Desert region the plant is called the "Joshua Tree," and in 1886 attempts were made to manufacture paper-pulp from it, but these appear not to have been commercially successful. Professor Sargent states:—"Railroads now cross the Mohave Desert, and from the window of his car the traveller can see the forests of *Yucca arborescens* stretching indefinitely into the hazy distance, unlike any other forest on the continent, and without a rival in singularity and weirdness."

C. H. W.

We are indebted to Mr. Ernest Braunton, of Los Angeles, California, for kindly supplying these photographs and the following information about *Clistoyucca arborescens* Trelease, as it occurs in its home in the Mohave Desert, some fifteen miles east of Lancaster, Los Angeles County. The tree which is here illustrated is reputed to be one of the largest of the many millions growing in that country.

The species extends through the desert portions of southern Nevada to south-western Utah, and from the western arm of the Mohave Desert in Southern California northwards over the Walker Pass at an altitude of 5,000 feet to Kern River Valley.

The so-called "desert lands" on which this tree normally occurs are very productive where there is an ample water supply, and as it reaches its best development on the richest soil there is a danger that the finest specimens will disappear as the best land of these districts is taken into cultivation. The actual extinction of the species is not to be feared, for there are reported to be literally millions of trees extending over many thousands of acres where they form a conspicuous feature of the landscape in company with the Mesquite (*Prosopis juliflora*) and the Creosote Bush (*Larrea* spp.). At night time, particularly, they present a very weird and curious appearance as they are silhouetted against the clear sky above the light-coloured sandy surface of the desert.

The trees bloom only occasionally, and, as the inflorescences are terminal, they branch profusely. The oldest leaves reflex but remain on the trunk until it is 8 to 10 feet high ; subsequent leaves are produced on the branches, while the trunk becomes bare. The desert regions in which these trees grow are subject to strong winds and whirlwinds, and the trees, owing to their branching habit, are apt to suffer severely, getting badly torn and large limbs being blown off completely. It is in this state that they present their most weird appearance.

They are cross-pollinated, and for this service depend on a noctoid moth, *Pronuba synthetica*, of a smoky tint. The first joint of the maxillary palp of this moth is much lengthened, beset on its inner surface with stiff bristles and can be rolled up like a trunk so as to enclose a ball of light yellow pollen, sometimes three times as large

PLATE V.

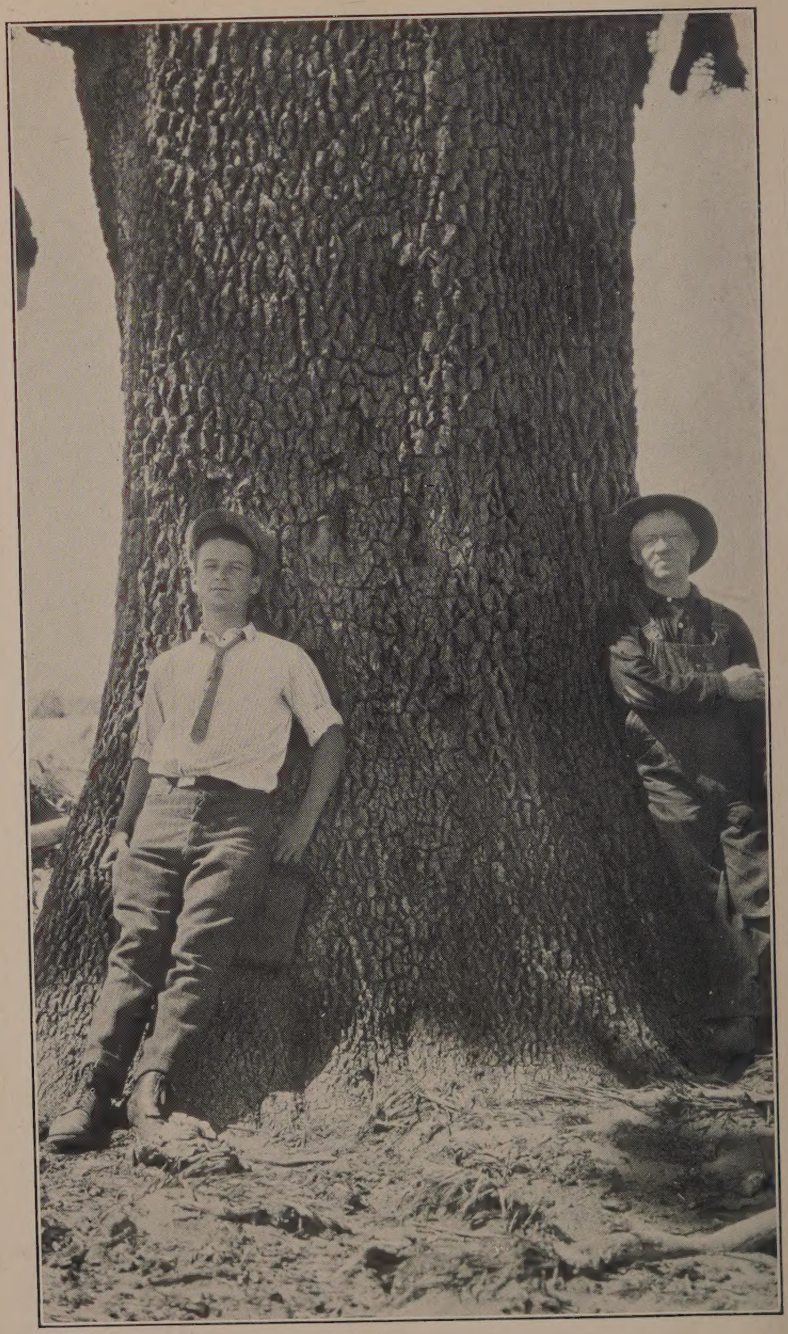
*Clistoyucca arborescens*, 62 ft. high, 20 ft. girth 2 ft. above ground. Fifteen miles east of Lancaster, Los Angeles.

*Clistoyucca arborescens*, a young tree.

*Photos. by* E. Braunton, July, 1925.

[*To face page* 50.

PLATE VI.



*Clistoyucca arborescens* showing nature of the bark at lowest part of the bole.

*To face page* 51.] *Photo. by* E. Braunton.

as the insect's head. Having pierced the funnel-shaped stigma with its ovipositor and deposited a few eggs near the ovules, the moth turns around and stuffs the pollen down the hole it has made. The larvae are hatched on the fourth or fifth day and feed on the ovules, of which about 200 are produced in each ovary. The grubs require only 18 to 20 ovules for their sustenance until they escape from the fruit and thus leave an abundance of seeds for reproducing the plant. Without the insects, the production of seeds could not take place.

Snow falls every year in the county where this "Yucca" occurs and it should be able to be grown in the south of England in warm sunny localities with a dry atmosphere.

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## IX. NOTES ON THE FLORA OF RAPA. L. A. M. Riley.

("St. George" Pacific Expedition, 1924–5.*)

During the visit of the "St. George" to the South Pacific in the spring of 1925 botanical collections were made on four islands, viz.:—Napuka, one of the Disappointment Islands, Fakarava in the Tuamotu Archipelago, Rurutu, one of the Austral Group, and Rapa, which occupies an isolated position some 250 miles to the S.E. of the Australs.

In the absence of the writer, who had been compelled to return to England on medical advice, collecting was carried out by Lieut.-Colonel H. J. Kelsall, the ornithologist, and Mr. C. L. Collenette, one of the entomologists, who also was largely responsible for the organisation of the Expedition. Several specimens were collected by Miss C. E. Longfield, who accompanied the Expedition.

Thirty species altogether were obtained on the first three islands visited; unfortunately they represent only species common in Polynesia or cosmopolitan in distribution. But on Rapa, of the seventeen species collected, four are apparently new to science, of which one, *Corokia Collenettei* Riley, is of considerable phytogeographical import, inasmuch as the genus was previously known only from New Zealand and the Chatham Islands, over 2,000 miles distant. They are described below, and, on account of the fact that, so far as has been ascertained, no botanical work has previously been done on Rapa, it has seemed desirable to give the complete list of the collection, together with a few notes on the vegetation of this little-known island. The duration of the visit of the "St. George" was from April 10th to 18th, 1925.

Rapa is situated in 27° 36 S., 144° 17 W., and is five miles in length by four in breadth. It is of volcanic origin with steep jagged peaks, of which the highest rises to 2,077 ft. In shape it resembles a

* The following papers on the botanical results of the "St. George" Pacific Expedition, 1924–5, have already appeared: "Notes on Madeira Plants" (*Kew Bull.* 1925, 26–33); "Critical Notes on Trinidad Plants" (l.c. 133–142); "Critical Notes on Galapagos Plants" (l.c. 216–231).


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DISAPPOINTMENT I.
Napuka
SAVAII
NEW HEBRIDES
FIJI ISLANDS
SAMOA OR NAVIGATOR Is
SOCIETY Is
Otaheite
TUAMOTU OR LOW ARCHIPELAGO
TONGA OR FRIENDLY Is
COOK OR HERVEY Is
NEW CALEDONIA
LOYALTY Is
Rurutua
TROPIC OF CAPRICORN
TUBUAI OR AUSTRAL Is
RAPA OR OPARU
NELSON Is
BASS Is
NORFOLK I.
NEW ZEALAND
CHATHAM Is
PACIFIC OCEAN
20
30
40
50

misshapen letter "C", thickened towards the north and south, with the interior occupied by Ahurei Bay, which fills the bed of an ancient crater and opens to the sea on the eastern side. The island is little visited by vessels, and, according to Mr. Collenette, the natives still use the candle-nut [*Aleurites moluccana*] for illumination in preference to oil. Mr. Collenette has kindly contributed the following notes on the vegetation:—

"The neighbourhood of the village of Ahurei presents little of botanical interest, orange and lime trees, castor oil plants, and *Hibiscus tiliaceus* L., being predominant. The island possesses many streams, which are utilised on the lower ground for the irrigation of extensive taro beds [*Colocasia antiquorum*], this vegetable being the principal food of the inhabitants.

"The greater part of the hill slopes are covered with a growth of short grass and a species of fern, larger growth being kept down by grass fires and by the high winds which bend and deform any isolated unsheltered trees. Thick vegetation clothes some of the higher peaks, the sheltered and damp gullies down to sea level, and the slopes of detritus at the foot of cliffs. At lower levels in these situations the candle-nut predominates, together with *Fitchia nutans* Hook. f., and a riot of limes, guavas, peppers, and large ferns. At about 500 feet a Tree-fern makes an appearance, becoming more plentiful as the elevation increases and eventually completely dominating all other trees.

"In number of species the flora presents a great contrast to that of the tropical islands which the "St. George" had recently visited. Apart from three or four plants which could not be found in flower or fruit, and excluding others which were of common occurrence in Tahiti or the Marquesas, every species met with was collected. Of the seventeen species comprising the collection brought home, several were included merely for the identification of the food plants of certain lepidopterous larvae.

"About a dozen coconut palms and at least one mango tree were seen, with an excellent growth of leaf, but we were informed that they never fruited. On the other hand, groves of orange trees in the village bore exceptional loads of fruit."

The first set of Polynesian plants has been presented by the Scientific Expeditionary Research Association to Kew, and the second set to the British Museum.

### List of plants collected on Rapa Island.

*Sida rhombifolia* L., no. 774.

*Oxalis corniculata* L., no. 769.

*Dodonaea viscosa* L., no. 780.

*Weinmannia parviflora* Forst., no. 772.

*Jussieua suffruticosa* L., no. 784.

**Corokia Collenettei** *Riley*, sp. nov.; *C. macrocarpae* Kirk et *C. buddleoidei* A. Cunn. affinis, ab illa foliis longe petiolatis nervis

lateralibus magis ascendentibus, paniculis longioribus et laxifloris, ab hac forma foliorum, petiolis multo longioribus, paniculis laxioribus, floribus et fructu multo minoribus differt.

*Arbor* 4.5 m. alta. *Ramuli* stricti, robusti, fere 5 mm. diametro 15 cm. infra apicem, striato-rugosi, ob folia delapsa cicatricosi, cinereo–pilosi. *Folia* oblanceolata, 5–8 cm. longa, 1.5–2.8 cm. lata, obtusa vel subacuta, apiculata, basi in petiolum gradatim angustata, integra vel saepius versus apicem irregulariter denticulata, coriacea, supra glabra, iuventute pilosa, laete viridia, subtus albo-tomentosa, nervis lateralibus utrinsecus 7–8 satis manifestis supra cum rete venularum impressis subtus elevatis; petioli 1–1.8 cm. longi, compressi, albo-tomentosi, setulis minutis nigris intersparsis. *Inflorescentia* racemosa vel subpaniculata, axillaris, circiter 7.5 cm. longa, 10–16-flora, ubique tomentosa; bracteae lineari-lanceolatae, 4.5–5 mm. longae, acutae; bracteolae circiter 2 mm. longae. *Pedicelli* 6–7 mm. longi. *Lobi calycis* 6–7, acute triangulati, 2.5–2.75 mm. longi, basi 1–1.5 mm. lati, intus glabri, marginibus subrevolutis. *Petala* 6–7, carnosa, lutea, basi connata sed primo visu libera, anguste oblongo-ovata, 6 mm. longa, 2 mm. lata, subacuta, apice incurvo, extra villosa, intus glabra. *Stamina* 6–7, omnino glabra; filamenta 2.5 mm. longa, basi fere 0.5 mm. lata, apice angustata, nonnunquam basi petalorum adnata; antherae versatiles, oblongo-ovatae, 2 mm. longae, 0.75 mm. latae, subacutae. *Ovarium* disco carnoso 2.25 mm. diametro coronatum; stylus 5 mm. longus, apice capitatus, 5-lobus; ovula oblonga, 0.75 mm. longa, 0.25 mm. lata. *Drupa* ovoidea, obtuse 4–5-angulata, iuventute cinereo-pubescens, demum glabra vel basi tantum pubescens, rugosa, nigra, 3–4-locularis. *Semina* in quoque loculo solitaria, oblonga vel subconica, 3.5 mm. longa, 1.25 mm. diametro, fulva, sub lente punctulata.

Rapa; in exposed situations on hill summit, 240 m., fl. and fr. April, *Collenette in Riley 777* (type in Herb. Kew.).

Mr. Collenette remarks that the flowers have a faint scent resembling cowslips.

The genus *Corokia* has hitherto been regarded as endemic in New Zealand and the Chatham Islands. Its known range is now extended over 2,000 miles by the discovery of *C. Collenettei*.

**Plectronia Rapae** *Riley*, sp. nov.; *P. barbatae* (Forst.) Benth. et Hook. f. affinis, sed foliis vix coriaceis brevissime et late obtuse cuspidatis nonnunquam fere rotundatis tantum, supra nitidis subtus subnitidis et conspicue reticulatis, stipulis longioribus, calyce fere truncato vel inconspicue dentato differt.

*Arbor* patens, 3 m. alta. *Ramuli* satis robusti, 3 mm. diametro 15 cm. infra apicem, subquadrangulati, glabri. *Folia* ovata, 6.5–10 cm. longa, 3.8–6.2 cm. lata, brevissime et late obtuse cuspidata, rarius rotundata, basi acute cuneata, integra, utrinque obscura, glabra, supra nitida, subtus subnitida, nervis lateralibus utrinsecus 5–6 valde ascendentibus supra manifestis subtus cum costa elevata et rete venularum conspicuis; petioli 5–7 mm. longi.

*Stipulae* e basi 3 mm. lata triangulato-acuminatae, 5 mm. longae. *Cymae* axillares, umbellatae, 2–4-florae. *Pedunculi* 0.5–3 mm. longi. *Pedicelli* 8 mm. longi. *Flores* odorati. *Tubum calycis* subnullum, inconspicue 5-dentatum vel fere truncatum, sparse ciliatum. *Corolla* lutea, carnosa, extra glabra, tubo 5 mm. longo 2 mm. diametro intus hirsuto, lobis 5 ovatis 5–5.5 mm. longis circiter 2.5 mm. latis acutis subapiculatis marginibus revolutis, utrinque glabris. *Stamina* 5, summo tubo calycis inserta; filamenta brevissima; antherae ovoideae, 1.25 mm. longae, 1 mm. diametro. *Ovarium* obconicum 2.25 mm. longum, 1.75 mm. diametro; stylus 7.5 mm. longus, capitatus, 2-lobus, glaber. *Fructus* haud visus.

RAPA; in sheltered situation among other trees at head of valley, fl. April, *Longfield in Riley* 778 (type in Herb. Kew.).

*Erigeron bonariensis* L., no. 785.

*Fitchia nutans* Hook. f., no. 773.

*Gnaphalium luteo-album* L., no. 771.

*Vaccinium cereum* Forst., no. 782.

*Verbena officinalis* L., no. 775.

*Peperomia leptostachya* Hook. et Arn., no. 783.

*Piper latifolium* L. f., no. 779.

**Claoxylon Collenettei** *Riley*, sp. nov.; a *C. taitensi* Muell. Arg. foliis valde dentatis breviter obtuse cuspidatis haud acutis recedit.

*Arbor* ad 3.6 m. alta. *Ramuli* robusti, 5.5 mm. diametro 15 cm. infra apicem, longitudinaliter rugosi, glabri, fulvi. *Folia* elliptica vel ovato-elliptica, 6–15 cm. longa, 3.5–6.5 cm. lata, breviter et obtuse cuspidata, basi cuneata, satis remote obtuse dentata, coriacea, utrinque glabra, supra obscura, subtus pallidiora, nervis lateralibus utrinsecus 4–8 utrinque subelevatis, costa subtus manifeste elevata; petioli robusti, saepius ut ramuli suberosi, 5 mm. infra basin foliorum 1.5–2.5 mm. diametro, plerumque 3–5.5 cm. longi, raro breviores, transverse rugosi. *Stipulae* haud visae. *Inflorescentiae* axillares, elongatae, 2.5–8 cm. longae, satis laxiflorae, puberulae. *Pedicelli* 3.75 mm. longi. *Alabastra matura* globosa, 2.5–3 mm. diametro. *Sepala* 3, late obovata, 4 mm. longa, 3 mm. lata, rotundata, integra, extra pubescentia. *Stamina* numerosa; filamenta libera, 1.5 mm. longa, gracilia, glabra; antherarum loculi obovoidei, 0.25 mm. longi, apice divergentes. *Flores feminei* haud visi.

RAPA; in sheltered situation among other trees at head of valley, 180 m., fl. April, *Collenette in Riley* 781 (type in Herb. Kew.).

Mr. Collenette appends a note to the effect that there was only one flowering branch on the tree.

**Phyllanthus Longfieldiae** *Riley*, sp. nov.; *P. sandwicensi* Muell. Arg. affinis, sed indumento totius plantae, necnon forma et magnitudine foliorum manifeste differt.

*Arbuscula* imminuta, usque ad 1.2 m. alta, habitu patenti. *Ramuli* satis robusti, 2.5 mm. diametro 15 cm. infra apicem, striato-rugulosi, plerumque fusco-pubescentes, iuniores versus apicem cinereo-pubescentes. *Folia* elliptica, rarius oblongo-elliptica, latiores nonnunquam subpanduriformia, 1.7–5.3 cm. longa, 1–3 cm. lata, obtusa, basi oblique subcuneata, integra, utrinque obscura, supra sparse, subtus satis pilosa, nervis lateralibus utrinsecus 7–10 plerumque fere sub angulo recto patentibus supra haud conspicuis subtus cum rete venularum satis manifestis; petioli 3–4 mm. longi; stipulae triangulato-acuminatae, 2–2.5 mm. longae, basi 1.5 mm. latae. *Flores* in axillis 2–5-fasciculati. *Pedicelli* 4 mm. longi, glabri. *Tepala* floris feminei 6, carnosa, 2.5 mm. longa, 1 mm. lata, lutea; exteriora oblongo-elliptica, obtusa extra pubescentia; interiora elliptica, subacuta, utrinque glabra. *Ovarium* breviter stipitatum, 6-gonum, 0.75 mm. altum, 0.75 mm. diametro, glabrum; styli crassi, acuti, integri, 0.75 mm. longi. *Flores masculi* haud visi.

Rapa; on windswept hill-side among grass and ferns, fl. April, *Longfield in Riley* 776 (type in Herb. Kew.).

*Dianella intermedia* Endl., no. 770.

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## X.—SPOLIA MENTAWIENSIA. C. Boden Kloss.

The Mentawi Group, to the west of Sumatra, consists of the islands of Siberut, Sipora, North and South Pagi, and a number of smaller islands. Siberut, the northernmost, is larger than the total area of the other three large islands, which are fairly equal in size.

The islands are covered with heavy forest and their botany was unknown before the present expedition. A few plants, however, had been collected on Sipora by Herr Alfred Maas in the nineties ("Bei liebenswürdigen Wilden", Berlin 1902), and a few had been sent home from the Pagi Islands by Dr. W. L. Abbott and myself in 1902.

I visited the islands in September and October, 1924, with Mr. N. Smedley, Assistant Curator of the Raffles Museum, Singapore, and a party of native collectors. Dr. H. H. Karny, Entomological Assistant of the Buitenzorg Museum, Java, also accompanied me, with native assistants, one of whom collected plants for the Herbarium at Buitenzorg. The material here discussed was obtained with the assistance of a native collector attached, on my invitation, by Mr. I. H. Burkill, then Director, Botanic Gardens, Straits Settlements.

The Mentawi Islands are not very pleasant collecting grounds: they are largely swamp out of which rise hills nowhere exceeding 1,500 feet in height, and generally difficult to get to, as they are surrounded by soft ground. The Sago palm is common. The villages of the interesting Indonesian inhabitants are all situated on river-banks a few miles up-stream, and there are scarcely any

paths except those made at the direction of the Dutch military posts for patrol purposes: these are often untraversable owing to floods, for there is much rain throughout the year.

The collection was obtained near the Government stations at Siberut in the island of that name and Sioban in Sipora: it came from the sea-shore, low ground and swamps, cultivated areas, and from such hills up to 500 or 600 feet as we were able to attain. Owing to wet weather the plants had to be dried over fires.

The Mentawi Islands lie parallel to, and 60–80 miles distant from, the west coast of Sumatra. Siberut is about 70 miles long and about 30 miles broad and its northernmost extremity is on Lat. 1° South.

The islands are apparently connected with each other by sea-bottom of less than 100 fathoms in depth, and recent bathygraphical charts show a connection with Sumatra, via the Batu Islands to the north, by a narrow ridge of similar soundings, but I am inclined to doubt that this ridge is unbroken as indicated: some faunal groups exhibit remarkable peculiarities. Otherwise the islands are surrounded by depths of 100–500 fathoms of sea: further, everywhere directly between the group and Sumatra stretches the long Mentawi Sea, or Basin, with depths of 500–1000 fathoms.

In view of the fact that nearly all the other land masses of Malaysia (the Peninsula, Sumatra, Java, Bali, Borneo, Palawan, etc.) stand on a shallow bank of less than 40 fathoms we should expect to find a greater difference between the Mentawi Islands and the rest of the sub-region than between any other two parts of it ; but this collection indicates that, botanically, such is not the case. Possibly this is due to the lowness of the islands and their comparatively small size.

The heights given for species are only approximate, but they serve to show whether the specimens came from plants tall, medium, or low.

Spolia Mentawiensia is the general title under which, in various journals, all the reports, in the main zoological, on the 1924 visit to the islands will be published.

**The Flora of the Mentawi Islands.** H. N. Ridley.

The study of the Sumatran flora, which has been till late rather neglected by botanists, is gradually being completed by collections such as this very interesting one by Mr. C. Boden Kloss. The collection contains 365 species, of which 119 have not as yet been discovered in the adjacent Malay Peninsula and are confined to Sumatra, and of these there are 54 new species and one new genus.

The plants were all from the lowlands, and those of the coastal areas have a greater affinity with those of the low country in the Malay Peninsula. There can be little doubt that at no very distant geological period Sumatra was joined to the Malay Peninsula and in this way we may account for a large number of plants

being common to both. But besides that many of the seashore plants, widely dispersed by sea currents, have been drifted from shore to shore as seeds, and further the strait between the two areas is not so wide but that many seeds could have been brought by birds and bats from one to another.

Still the Sumatran flora has certain peculiar characteristics shown clearly in this collection which distinguish it from the flora of the Malay Peninsula, and which have also been shown in other collections made further inland in the island.

The genus *Saurauja* is extremely well represented in Sumatra, Java and Borneo, there being about fifty species, many of which are shrubs and bushes. In the Malay Peninsula the shrubby kinds are completely absent and only a few trees, five in all, occur, and these by no means abundantly. Among the *Gesneraceae* we find the fact that while the genera *Didymocarpus* and *Didissandra* are very largely represented in the Malay Peninsula (*Didymocarpus* 56 species, *Didissandra* 16), they are very scanty in Sumatra, Java and Borneo, (*Didymocarpus* 30, *Didissandra* 6). On the other hand the genus *Cyrtandra* is abundant in Sumatra, Java and Borneo, with about 90 species, and restricted in the Malay Peninsula to 12 species. In this case the genus appears to have come in a westerly direction from Polynesia where it is very abundant and disappears entirely a little north of the peninsula. While in the case of *Didymocarpus* the genus appears largely to have come from India southwards to the Malay Peninsula where it has developed very extensively.

The extreme scarceness of species of Palaearctic plants in the Malay Peninsula as compared with those of Sumatra and Java, e.g., *Viola, Disporum, Anemone, Sanicula, Lonicera*, and the absence of *Ranunculus, Fragaria, Juncus, Agrimonia, Alchemilla*, etc., is very striking, and I think that the few species that occur in the Malay peninsula are the remains of a flora which crossed from Sumatra when it was connected with the Malay Peninsula.

The most important new species in this collection are a second species of the hitherto monotypic genus *Zuccarinia*, previously known only from Java, the yellow-flowered *Staurogyne citrina*, all the other species having white or brown flowers, and the curious new genus *Polycycliska* belonging to the small Malayan group of *Coptophyllum* and *Pomazota*. The occurrence of *Xanthophytum Villarii* previously known only from the Philippines is a remarkable extension of distribution.

### Dilleniaceae.

**Dillenia meliosmaefolia** *Hook. fil.* Siberut, 14033. Height 60 ft.

**Tetracera assa** *DC.* Collected many years ago in Pagi by Kloss and Abbott.

**Kadsura scandens** *Bl.* Siberut, 14542. Flowers yellow with red centre ; creeper.

**K. cauliflora** *Bl.* Sipora, 14709. Flowers crimson.

ANONACEAE.

**Polyalthia Teysmanni** *Miq.* Sipora, 14794. Petals dull pale crimson; fruit crimson brown.

**Popowia rufescens** *Ridl.* n. sp.; affinis *P. ramosissimae* Hook. fil., differt foliis subtus ferrugineo-hirtis, floribus majoribus racemosis.

*Arbor* 5–7 m. alta, ramis nigrescentibus, partibus juvenibus rufo-hirto-velutinis; *foliis* elliptico-lanceolatis cuspidato-acuminatis, basibus obtusis paullisper inaequilateris, superne glabris, subtus minute pustulosis, nervis superne immersis, 10-paribus, subtus costa elevata dense hirta, (in sicco subtus cinnamomeis) 8 cm. longis, 3 cm. latis; petiolis brevissimis rufo-hirtis; *racemis* extra-axillaribus 1 cm. longis, dense rufo-hirtis paucifloris, pedicellis rufo-hirtis crassis 2 mm. longis; *sepalis* brevibus ovatis rufo-hirtis 2 mm. longis; *petalis* exterioribus albis, albo-hirtis; *sepalis* superantibus, interioribus rotundatis glabris; *staminibus* paucis in seriebus 5; *antheris* oblongis, appendicibus latis ovatis; *pistillis* glabris 6; *stigmatibus* planis latiusculis.

Siberut, 14607. Flowers white, fruit green; 15 to 20 ft. high.

**Goniothalamus costulatus** *Miq.* Siberut or Sipora, 14781.

MENISPERMACEAE.

**Tinomiscium javanicum** *Miers.* Sipora, 14688. Flowers white, creeper.

NYMPHAEACEAE.

**Barclaya Motleyi** *Hook. fil.* Siberut, 14618. Flowers dark red.

VIOLACEAE.

**Neckia lancifolia** *Hook. fil.* Siberut, 14076. Only known previously from Borneo.

POLYGALACEAE.

**Xanthophyllum ellipticum** *Miq.* Sipora, 14835. Fruit green.

HYPERICACEAE.

**Hypericum japonicum** *Thunb.* Siberut, 14479. Flowers orange.

FLACOURTIACEAE.

**Flacourtia inermis** *Roxb.* Sipora, 14822. Fruit pale green; 30 ft. high.

**Scolopia rhinanthera** *Clos*. Sipora, 14646. Fruit green; 10 to 15 ft. high.

### Guttiferae.

**Calophyllum inophyllum** *L*. Sipora, 14763. Flowers white, stamens yellow; 35 ft. high.

### Ternstroemiaceae.

**Saurauja tristyla** *DC*. Siberut, 14499. Height 10 ft.

**Saurauja singalanensis** *Korth*. Siberut, 14489: flowers white. Sipora, 14662: flowers white, stamens yellow.

var. **longifolia** *Ridl*. n. var.; foliis lanceolatis utrinque acuminatis, 18 cm. longis, 4.5 cm latis. Siberut, 11434. Fruit white, centre yellow, hairs red.

**Saurauja siporensis** *Ridl*. n. sp.; *S. lanceolatae* DC. affinis, sed foliis tenuioribus pallide cinnamomeis in dorsis, sepalis spinulosis, stylis 7.

*Frutex* 9 m. altus, ramis spinulis planis lanceolatis acuminatis appressis, 3 mm. longis tectis; *foliis* tenuiter coriaceis, subtus cinnamomeo-albis lanceolato-oblongis obscure serrulatis spinulosis ad apices abrupte cuspidatis, basibus rotundatis vel breviter angustatis inaequilateribus, nervis 13-paribus subtus elevatis superne glabris, subtus nervis et nervulis parce spinulosis, 17 cm. longis, 7 cm. latis; petiolis 3 cm. longis, dense spinulosis; *racemo* brevi axillari spinuloso 2 cm. longo; *sepalis* oblongo-ovatis, 3 mm. longis spinulosis; *petalis* parvis albis; *staminibus* 12; *stylis* 4; *ovario* hirsuto.

Sipora, 14828. Flowers white; 10 ft. high.

### Dipterocarpaceae.

**Dipterocarpus retusus** *Bl*. Sipora, 14719, 14749. Pagi, 14633. Height 70 to 80 ft. Siberut, 14452: large tree.

**Vatica lutea** *Ridl*. n. sp.; differt a *V. cinereae* King in foliis tenuioribus haud minute reticulatis, floribus minoribus glabrioribus.

*Arbor* 13 m. alta, ramulis et paniculis furfuraceis; *foliis* lanceolatis acuminatis acutis basibus obtusis, coriaceis glabris, nervis 12-paribus paullo elevatis intra marginibus arcuantibus 8 cm. longis, 3 cm. latis; petiolis crassis furfuraceis 5 mm. longis; *paniculis* et *racemis* axillaribus, 3 cm. longis, pedicellis 2–4 mm. longis: *sepalis* 5, oblongo-lanceolatis patentibus, utrinque velutinis 2 mm. longis; *petalis* lineari-oblongis obtusis imbricatis, 5 mm. longis, glabris luteis; *staminibus* 15, filamentis triangularibus acutis, antheris oblongis seta terminali corniformi; *ovario* conico velutino; *stylo* cylindrico crassiusculo; *stigmate* bilobo, lobis rotundatis. *Fructus* ignotus.

Siberut, 14581. Flowers yellow; 40 ft. high.

I have seen no fruit, so that I am not sure whether this is a true *Vatica*, in the restricted sense.

MALVACEAE.

**Urena lobata** *Linn.* Siberut, 13078. Sipora, 14798. Flowers pink.

STERCULIACEAE.

**Sterculia rubiginosa** *Vent.* Sipora, 14736. Flowers red and white; 10 to 15 ft. high.

TILIACEAE.

**Grewia acuminata** *Miq.* Sipora, 14679. Creeper; fruit russet green; a very velvety form of this variable plant.

LINACEAE.

**Roucheria Griffithiana** *Planch.* Siberut, 14532. Fruit yellow.

RUTACEAE.

**Luvunga eleutheranthera** *Dalz.* Siberut, 14611. Flowers white; creeper.

SIMARUBACEAE.

**Samadera indica** *Gaertn.* Siberut, 11431. Flowers yellowish-white; 10 ft. tall.

**Eurycoma longifolia** *Jack.* Siberut, 11444. Flowers and fruit red; 15 ft. high.

OCHNACEAE.

**Gomphia Hookeri** *Planch.* Siberut, 14560. Fruit red.

OLACINEAE.

**Stemonurus pauciflorus** *Ridl.* n. sp.; affinis *S. corniculato* Ridl., sed inflorescentia multo laxiore floribusque paucioribus minoribus.

*Arbor* glabra; *foliis* coriaceis (siccis subtus cinnamomeis) oblongis vel ellipticis obtusis vel breviter acuminatis, nervis indistinctis circiter 8-paribus, costa prominente, 8 cm. longis, 4.5 cm. latis; petiolis 1 cm. longis; *cymis* axillaribus gracilibus, pedunculis 1–2 cm. longis, ramis 3–5 umbellatis 1.5–2 cm. longis; *floribus* albis 5–6 secundis sessilibus, 4 mm. longis; *calyce* cupulari griseo, dentibus brevissimis 5; *petalis* oblongis obtusis coriaceis; *staminibus* pilis longissimis albis; *ovario* conico acuminato; *drupis* immaturis lanceolatis acuminatis.

Siberut, 14487. Flowers white.

**Gonocaryum sp.** Siberut, 1458. Greenish fruit; 10 ft. high.

Most nearly allied to *G. Griffithianum* Kurz, of Tenasserim. The leaves are broadly ovate, some very unequally lobed at the base. The fruit is not angled. It is not *G. gracile* Miq. of Sumatra, as that has angled fruit.

### Ilicineae.

**Ilex Engleriana** *Loesen.* Siberut, 14504. Height 5 ft.

A similar plant with longer racemes was collected by Forbes on the Dempo. I have not seen the type which was collected by Beccari on Mount Singalan.

### Celastraceae.

**Salacia viminea** *Wall.* Siberut, 14521. Petals brown; creeper.

**S. flavescens** *Kurz.* Siberut, 14521. Flowers white, base of petals brown.

**S. prinoides** *DC.* Siberut, 14476. Flowers greenish-yellow; creeper.

### Rhamnaceae.

**Zizyphus aenoplia** *Mill.* Siberut, 14571. Flowers greenish-yellow; creeper.

**Z. Horsfieldii** *Miq.* Siberut, 14619. Fruit brown; creeper.

### Ampelidaceae.

**Tetrastigma papillosum** *Bl.* Siberut, 14472: flowers green to reddish yellow. Sipora, 14832: flowers pink; stems and stamens red.

**T. pergamaceum** *Planch.* var.? Siberut, 14080. Fruit green; creeper.

I have no complete flowers of this specimen and the fruit appears to be much smaller than in the species.

**Tetrastigma encephalosperma** *Ridl.* n. sp.; affinis *T. glabrato* Planch. sed bacca multo minore et foliis majoribus, seminibus cerebriformi-sulcatis.

*Glabra*, caule laevi gracili; *foliis* trifoliatis petiolis 8 cm. longis, foliolis carnoso-coriaceis elliptico-lanceolatis acuminatis, basibus cuneatis, marginibus sparse serratis versus apices, 12 cm. longis, 8 cm. latis, nervis indistinctis vel invisis, petiolulis 1 cm. longis; *cymis* axillaribus crassiusculis 3.5 cm. longis et aequilatis; *bracteis* ad bases ovatis coriaceis obtusis; *calyce* brevi patelliformi; *petalis staminibusque* haud visis; *disco* anguste annulari; *stylo* brevi; *stigmate* pulviniformi obscure lobato; *baccis* globosis viridibus 6 mm. longis dense congestis, infructescentia 5 cm. lata; *seminibus* 2 ovalibus complanatis 6 mm. longis, dorso rotundato sulcato et

medio sulci carinato lateribus sulcis cerebriformibus, ventre plano sulcato et carinato, sulcis horizontalibus.

Sipora, 14643. Fruit green.

Allied to *T. glabratum* Planch. but the fruit is much smaller and the leaves larger. The seeds have cerebriform, shallow grooves on the back, the inner face having perpendicular grooves with transverse lateral branches.

**Cissus cerasiformis** *Teysm. & Binn.* Sipora, 14664. Fruit crimson to pinkish green; creeper.

**C. pyrrhodasys** *Miq.* Sipora, 14716. Fruit green.

**Cissus flaviflorus** *Ridl.* n. sp.; affinis *C. geniculato* Bl., sed foliolis latioribus haud denticulatis subtus hirtis, cyma multo majore floribus majoribus.

*Caule* gracili flexuoso hirto; *foliis* trifoliatis herbaceis ovatis basibus latis apice acuminato, lateralibus obliquis marginibus undulatis subserratis, nervis e basi 5, e costa 5-paribus superne scaberulis, subtus molliter hirtis, 7 cm. longis, 5 cm. latis, petiolis hirtis 4 cm. longis, petiolulis 2 cm. longis; *cymis* axillaribus puberulis, pedunculis 6 cm. longis, ramis 2, 6 cm. longis laxe ramosis, pedicellis 2 mm. longis; *calyce* poculiformi integro; *petalis* 4 ad apices connatis oblongis 1 mm. longis glabris flavis; *staminibus* filamentis brevissimis, antheris lanceolatis obtusis basi latioribus; *disco* majusculo annulari 8-lobo, lobis 4 emarginatis; *stylo* brevissimo; *stigmate* punctiformi; *baccis* globosis viridibus 4 mm. longis; *seminibus* 1 to 4, dorsis rotundatis carinatis, ventre acuto nervo ramoso in utro facie.

Sipora, 14733. Flowers yellow; fruit green.

**Cayratia mollissima** *Gagnepain.* Siberut, 14568. Fruit green; creeper.

**Leea gigantea** *Griff.* Siberut, 10598. Flowers white; 5 ft. high.

**L. aequata** *Linn.* Siberut, 11430: fruit russet; 5 ft. high. Sipora, 14710: flowers pale green, centre yellow; stems crimson.

**L. aculeata** *Bl.* Siberut, 14630: flowers pink. Sipora, 14688: flowers pinkish red. Pagi, 14636; fruit brown.

### Sapindaceae.

**Allophylus ternatus** *Lour.* Siberut, 10597. Flowers white; 10 ft. tall.

**Guioa diplopetala** *Radlk.* Siberut, 14594. Flowers white; 20 ft. high.

### Sabiaceae.

**Meliosma lanceolata** *Bl.* Sipora, 14764. Flowers pale yellowish green; fruit red; 20 ft. high.

ANACARDIACEAE.

**Buchanania insignis** *Engler*. Siberut, 14585. Flowers white; 5 ft. high.

**Campnosperma macrophylla** *Hook. fil.* Siberut, 14566; fruit green; 20 ft. tall.

CONNARACEAE.

**Rourea pubinervis** *Planch*. Sipora, 14775. Flowers greenish yellow; creeper.

LEGUMINOSAE.

**Vigna retusa** *Walp*. Sipora, 14560. Flowers yellow.

**Mucuna gigantea** *DC*. Sipora, 14671. Siberut, 14535. Flowers pale green; fruit green with brownish pubescence; creeper.

**Millettia sericea** *Benth*. Sipora, 14758. Pods velvety; creeper.

**Dalbergia tamarindifolia** *Roxb*. Siberut, 13079. Flowers pink or white.

**Pongamia glabra** *Vent*. Sipora, 14796. Flowers pink; 10 ft. high.

**Derris uliginosa** *Benth*. Siberut, 14533. Flowers white, buds tinged pink.

**D. elliptica** *Benth*. Sipora, 14738. Flowers white to pink, reverse brown.

**Aeschynomene indica** *Linn*. Siberut, 14534. Flowers yellowish to pinkish.

**Spatholobus ferrugineus** *Benth*. Sipora, 14808. Flowers crimson.

**Canavalia obtusifolia** *DC*. Siberut, 14528. Flowers pink and white.

**Uraria crinita** *Desv*. Sipora, 14812. Flowers purplish.

**Desmodium umbellatum** *DC*. Siberut, 14531. Sipora, 14786.

**D. polycarpum** *DC*. Siberut, 14473. Sipora, 14726. Flowers purple.

**Cassia alata** *Linn*. Sipora, 14816. Flowers yellow.

**Bauhinia lucida** *Wall*. Siberut, 14561. Flowers orange or red; creeper.

**Entada Schefferi** *Ridl*. Siberut, 10597. Fruit green and brown (unripe); creeper.

**Pithecolobium lobatum** *Benth*. Siberut, 14554. Flowers yellow; 15 ft. high.

**P. Prainianum** *Merrill*. Siberut, 14602. Flowers white; 20–30 ft. high.

MYRTACEAE.

**Eugenia pseudo-formosa** *King*. Siberut, 14491.

**E. zeylanica** *Wight*. Siberut, 14536.

**Barringtonia racemosa** *Roxb*. Sipora, 14784: flowers greenish-yellow to crimson. Siberut, 14577: flowers pink; 10 ft. high.

MELASTOMACEAE.

**Melastoma malabathricum** *Linn*. Siberut, 12287.

**M. imbricatum** *King*. Siberut, 13093. Flowers pink.

**Medinilla alternifolia** *Bl*. Sipora, 14827. Flowers pink.

**M. venusta** *King* var. **grandifolia** *Ridl*. n. var.; foliis oblongis, 30–36 cm. longis, 15 cm. latis; cyma sessili.

Siberut, 14545. Flowers white, blotched violet.

The great size of the leaves, as big as those of *M. speciosa*, is remarkable. The only cyme on the specimen is sessile, but sessile cymes do occur on King's type of the species.

**Dissochaeta gracilis** *Bl*. Sipora, 14661. Flowers white, buds dull purple.

**D. intermedia** *Bl*. Siberut, 12282. Flowers pale lilac; creeper.

**Anplectrum pallens** *Tri*. Siberut, 13082; 14096. Flowers violet.

**Pachycentria tuberculata** *Korth*. Siberut, 11445. Flowers white, centre red; tuber brown.

**Pogonanthera pulverulenta** *Bl*. Siberut, 14541. Flowers pinkish; creeper.

**Memecylon heteropleurum** *Bl*. Sipora, 14743. Flowers pink; stamens white and purple; 20 ft. high.

**Pternandra echinata** *Jack*. Siberut, 14558. Flowers violet, centre yellow.

RHIZOPHORACEAE.

**Bruguiera gymnorhiza** *Lam*. Siberut, 12296. 10 ft. high.

ANISOPHYLLEAE.

**Anisophylla disticha** *Baill*. Siberut, 14077. Fruit crimson.

LEGNOTIDAE.

**Gynotroches axillaris** *Bl*. Sipora, 14761. Flowers yellowish to greenish white.

COMBRETACEAE.

**Lumnitzera coccinea** *Wight*. Siberut, 13294: seashore; flowers blood-red; 25 to 30 ft. tall. Sipora 14761: flowers carmine; 30 to 40 ft. tall.

LYTHRACEAE.

**Lagerstroemia ovalifolia** *Teysm. & Binn.* Siberut, 12300.

**Sonneratia caseolaris** *Merrill.* Siberut, 14526. Flowers crimson.

ONAGRACEAE.

**Jussieua suffruticosa** *Linn.* Siberut, 13094. Flowers yellow; 4 ft. high.

**J. erecta** *Linn.* Siberut, 14097. Flowers yellow.

PASSIFLORACEAE.

**Adenia populifolia** *Engl.* Siberut, 14493.

CUCURBITACEAE.

**Trichosanthes tricuspidata** *Lour.* Siberut, 14456.

BEGONIACEAE.

**Begonia Forbesii** *King.* Sipora, 14652. Flowers white; reverse of leaf green.

**B. bracteata** *Jack—B. lepida* Bl. Sipora, 14779: flowers white, tinged pink; reverse of leaf dull crimson, above brown green. Sipora, 14685: flowers white to pink. Siberut 10582: flowers pink.

From Jack's description I have little doubt that this is the plant he intended, and the Buitenzorg botanists identify the Javanese specimens with Blume's *B. lepida*. It is plentiful in Java. Kloss' specimens have longer acuminate points and longer teeth to the leaf, but I have seen traces of this in Javanese plants. The leaves of both Sumatran and Javanese plants are sometimes quite entire.

**B. atricha** *Miq.* Sipora, 14653. Leaf spotted white, reverse red with green veins.

I take this, from description, to be Miquel's *B. atricha*, collected in Palembayan, Sumatra, by Teysmann. Miquel is doubtful as to whether the male flowers have 4 perianth lobes; in the Sipora plant there are only two, quite round, and 5 mm. wide. He speaks of the fruit as turbinate. I should call it rather kite-shaped obtriangular, 4 cm. long, 2.5 cm. wide.

DATISCACEAE.

**Octomelis sumatrana** *Miq.* Siberut, 14625. Fruit brown; 70 to 80 ft. tall.

RUBIACEAE.

**Uncaria ovalifolia** *Roxb.* Siberut, 14539. Flowers green (monstrous).

**Sarcocephalus Junghuhnii** *Miq.* Sipora, 14833. Height 30 ft.

**Mycetia minor** *Ridl.* n. sp.; *M. javanicae* Hook. fil. affinis sed hirtior et omnino minor.

*Fruticulus*; *caulibus* ad basin albis glabris, partibus juvenibus hirtis; *foliis* herbaceis lanceolatis vel oblongo-lanceolatis cuspidato-acuminatis basibus angustatis, nervis 10-paribus, superne sparse hirtis, pilis multi-cellularibus, subtus in costa nervisque dense hirtis, 9 cm. longis, 4.5 cm. latis; petiolis dense hirtis 1 cm. longis; *stipulis* ovato-triangularibus acutis, glabris, inflorescentia axillari, 1 cm. longa, pedunculo brevi; verticillo *bractearum* 4 lanceolatarum; *cyma* umbellata florum 7 pedicellatarum, *bracteolis* ad basin pedicellarum verticillatis; *calycis* tubo globoso, lobis ovatis-triangularibus acuminatis; *corolla* et *stamina* desunt; *bacca* (in sicco) 2 mm. longa.

Sipora, 14686. Flowers yellow also white.

**Hedyotis congesta** *Br.* Siberut, 14090. Flowers white; 5 ft. high.

**Hedyotis resupinata** *Ridl.* n. sp.; affinis *H. venosae* Bl. diversa florum cymulis pedunculatis, a *H. vestita* R. Br. foliis subglabris floribus albis differt.

*Herba* prostrata, reptans, pilosa; *foliis* ovatis basibus breviter attenuatis glabris, costa et nervis 5-paribus ascendentibus scabrido-hirtis subtus exceptis, 4 cm. longis, 2 cm. latis; petiolis 4 mm. longis hirtis; *stipulis* basibus campanulatis setis longis hirtis, 4 mm. longis; *cymis* axillaribus 1 cm. longis; pedicellis 5 mm. longis, gracilibus; cymulis in ramis gracilibus 2 vel 3, trifloris; *floribus* albis sessilibus; *bracteis* linearibus angustissimis; *calyce* scabrido, lobis 4 lanceolatis acuminatis, tubo longioribus, marginibus et dorsis spinulosis; *corolla* brevi alba, puberula, lobis rotundatis; *staminibus* 4, filamentis brevibus filiformibus, antheris oblongis atris; *stylo* crasso; *capsula* bicocca, lobis magnis persistentibus verrucosula; *seminibus* pluribus atris.

Siberut, 14494. Flowers white.

**Polycycliska** *Ridl.* n. gen.; *Coptophyllo* Miq. affinis differt inflorescentia cylindrica verticillorum plurimorum bractearum flores umbellatos pedicellatos parvos cingentium.

*Fruticulus* simplex; *foliis* herbaceis; *spica* terminali cylindrica *bractearum* verticillorum flores pedicellatos cingentium dense congestorum; *floribus* per-parvis albis; *calycis* lobis 5 ovatis; *corollae* tubo brevissimo, lobis 5 ovato-oblongis; *staminibus* 5, antheris oblongis, filamentis brevissimis; *stigmate* bilobo; *disco* majusculo pulviniformi; *capsula* bicocca hirta pedicellata, coccis duris; *seminibus* plurimis atro-brunneis reticulatis. Species 1.

**Polycycliska cylindrica** *Ridl.* n. sp.

*Fruticulus* 21 cm. altus, *caule* lignoso superne furfuraceo; *foliis* herbaceis elliptico-lanceolatis acuminatis integris ad bases angustatis, nervis ascendentibus 13-paribus, secundariis brevioribus

ferme aeque conspicuis, nervulis paucis undulatis ramosis subtus conspicuis, 15–18 cm. longis, 4–5 cm. latis; petiolis 1–2 cm. longis; *stipulis* papyraceis oblongo-lanceolatis cuspidatis 1 cm. longis; *spica* cylindrica densa, 2 cm. longa, 1 cm. crassa; *bracteis* lanceolatis acuminatis marginibus hirtis verticillatis; *bracteolis* similibus angustioribus; *floribus* parvis circiter 8–9 in verticillo bracteolarum albis brevissime pedicellatis; *calyce* sparse hirto, lobis 5 ovatis marginibus ciliatis; *corollae* tubo brevissimo, lobis ovato-oblongis obtusis; *staminibus* 5 brevibus; antheris oblongis, filamentis brevissimis; *stylo* longiore; *stigmate* bilobo; *disco* majusculo pulviniformi; *capsula* bicocca hirta in pedicello accrescente 2 mm. longo coccis crustaceis duris; *seminibus* copiosis atro-brunneis scrobiculatis.

Siberut, 11489 (type); Sipora, 14684. Flowers white.

This little plant belongs to the group represented by *Coptophyllum* Miq. and *Pomazota* Ridl. It is distinguished by the whorls of bracts containing numerous, very small flowers, condensed into a cylindric spike and not on a large flat head as in *Coptophyllum*.

**Coptophyllum capitatum** *Miq.* Siberut, 14517. Flowers white. A small specimen.

**Ophiorrhiza filistipula** *Miq.* Siberut, 11436; flowers yellowish. Sipora, 14644; flowers white.

**Xanthophytum Villarii** *Vidal.* Siberut, 13077. Flowers green; 10 ft. tall.

This plant exactly resembles the Philippine Islands plant except that its leaves are wider, 3 cm. across. It is unusually tall for the genus.

**Argostemma montanum** *Bl.* var. ? Siberut, 11429. Flowers white, tipped with violet.

I am a little in doubt as to this identification as the corolla and stamens are missing in the specimen, and the species is only known as yet from Java, but it resembles nothing else.

**A. boraginеum** *Bl.* Sipora, 14695. Flowers white.

This is apparently var. *breviflora* Ridl. which I collected in Berastagi, but the corolla is missing.

**Urophyllum streptopodium** *Wall.* Siberut, 11449. Flowers greenish yellow; 8 ft. high.

**U. macrophyllum** *Korth.* Siberut, 14523. Height 10 ft.

**Zuccarinia cordata** *Ridl.* n. sp.; affinis *Z. macrophyllae* Bl. in foliis cordatis, petiolis brevibus, seminibus paucis distincta.

*Arbor*? glabra, ramis crassiusculis; *foliis* subcoriaceis oblongis vel ovato-lanceolatis acuminatis, basibus rotundatis cordatis, nervis ad 13-paribus subtus elevatis gracilibus, 24 cm. longis, 15 cm. latis; petiolis crassis 1.5 cm. longis; *stipulis* lanceolatis e basibus latis acuminatis, carinatis 3.5 cm. longis basibus 1.5 cm. latis; *pedunculis* axillaribus 1.5 cm. longis crassis; *capitulis* subglobosis 1 cm. longis; *bracteis* magnis rotundatis obtusis coriaceis,

*bracteolis* 2 ovatis ciliatis margine uno connatis; *floribus* 3 mm. longis sessilibus; *calycis* tubo subcylindrico, lobis brevibus ovatis marginibus ciliatis; *corollae* tubo brevi, lobis ter longioribus oblongis obtusis carnosis; *antheris* 5 oblongis majusculis, tubo corollae dorsis adnatis; *stylo* cylindrico angulato; *stigmate* punctiformi; *disco* annulari; *bacca* elliptica 2 cm. longa, 1 cm. in diametro in pedicello 2 mm. longo, obscure 5-costata disco plano terminata, uniloculari; *seminibus* planis costatis flavescentibus paucis 4–5.

Sipora, 14641.

This curious plant (probably a tree) is the second species known of the genus, the other one *Z. macrophylla* Bl. being a native of Java. The latter has ovate leaves, with an entire base, thinner and long petioles. The seeds in the only fruit of *Z. cordata* which I could examine were only 4 or 5, in *Z. macrophylla* they are numerous.

**Lecananthus erubescens** *Jack*. Siberut, 14620. Flowers white; creeper.

**Lucinea membranacea** *King*. Siberut, 14507. Flowers (i.e. bracts) red; creeper.

**Mussaenda hispida** *Ridl*. Siberut, 10576.

**M. cylindrocarpa** *Arech*. Sipora, 14776. Flowers orange and pale yellow.

**Guettarda speciosa** *Linn*. Sipora, 14785. Fruit green; 15 ft. high.

**Timonius sericanthus** *Miq*. Siberut, 14575. Flowers yellow; 10 ft. high.

**T. Finlaysonianus** *Wall*. Siberut, 14520. Flowers white; 10 ft. high.

**Tarenna sumatrana** *Ridl*. nov. comb.—*Webera sumatrana* Boerl. Sipora 14810. Flowers white; 10 ft. tall.

This quite resembles the figure by Boerlage in Veth's Midden-Sumatra iv. p. 13. His plant was found in Korinchi.

**Tarenna** sp. In fruit only. Sipora, 14078. Fruit green; 6 ft. high.

**Ixora grandifolia** *Zoll. & Mor*. Sipora, 14669.

**I. coriacea** *Br*. Siberut, 14567. Fruit orange to green; 30 ft. high.

**I. salicifolia** *DC*. var. **variegata** *N.E. Br*. Siberut. Flowers orange red; 6 ft. high.

**Ixora cuspidata** *Ridl*. n. sp.; species *I. salicifoliae* DC. proxima, sed foliis autem oblanceolatis vel ferme obovatis latis, cuspide longissima.

*Frutex* glaber; *foliis* tenuiter coriaceis oblongo-oblanceolatis vel elliptico-lanceolatis vel ferme obovatis apice abrupte longe cuspidatis basibus attenuatis, nervis 15–20-paribus parallelis, 14–18 cm. longis (cuspide 3–5 cm. longo) 4–6 cm. latis; petiolis

3–8 mm. longis; *stipulis* connatis in tubo, lobis subulatis; *cyma* terminali multiflora laxo, ramis 2 cm. longis, bracteis lanceolatis acuminatis; *pedicellis* 2 mm. longis; *calyce* 2 mm. longis, lobis lanceolatis; *corolla* tubo gracili 3–4 cm. longo, lobis patentibus lanceolatis acute acuminatis 1.3 cm. longis, 3 mm. latis; *staminibus* brevibus vix exsertis; *stylo* 2 mm. projecto clavato.

Sipora, 14798 (type). Flowers orange.

Borneo, N.W. Lumbedan, *Burbidge*. Sarawak near Kuching, *Haviland* 945; *Haviland and Hose* 3438.

**Morinda tinctoria** *Linn.* Sipora, 14649. Flowers white; fruit green; 15 ft. high.

**Coelospermum scandens** *Bl.* Sipora, 14774. Flowers greenish-white; heads of stamens black.

**Psychotria sarmentosa** *Bl.* Siberut, 10594.

**P. viridiflora** *Reinwdt.* Siberut, 10577. Flowers white; 5 to 10 ft. tall.

**P. stipulacea** *Wall.* Siberut, 1415. Height 15 ft.

**P. malayana** *Wall.* Sipora, 14700. Flowers white.

**Psychotria sumatrensis** *Ridl.* n. sp.; *P. malayanae* Wall. affinis sed corymbo furfuraceo minore, corollae tubo brevi cylindrico lobis brevibus, staminibus inclusis, foliis vix ad bases attenuatis.

*Frutex* glaber, *foliis* coriaceis ellipticis acuminatis, basibus brevissime attenuatis, nervis 16-paribus conspicuis vix elevatis, 20 cm. longis, 9 cm. latis; petiolis 2 cm. longis; *stipulis* ovato-lanceolatis cuspidatis 8 mm. longis; *corymbis* terminalibus, in pedunculis 3–5 cm. longis furfuraceis, pubescentibus congestis 2 cm. longis, 4 cm. latis; *bracteis* ovatis; *floribus* congestis glabris; *calyce* cupulato, dentibus minutis 5; *corollae* 5 mm. longo tubo cylindrico; lobis recurvis apicibus incurvis brevissimis; *staminibus* 5, filamentis in medio corollae insertis brevibus basi pilosis; antheris linearibus demum extrusis; *stylo* brevi demum producto; *stigmate* bifido.

Sipora, 14666. Flowers yellowish-white; fruit dull crimson.

This belongs to the *Grumilea* section of shrubby Psychotrias with corymbs of white flowers. The short tubular corolla with the points of the lobes recurved outwards, and the actual tips of the petals curved into the flower is somewhat unusual.

**Streblosa microcarpa** *Ridl.* Siberut, 13090. Flowers white.

**S. hirta** *Ridl.* Sipora, 14663. Flowers white.

**Chasalia curviflora** *Thw.* Sipora, 14834. Flowers white; fruit purplish black.

**Lasianthus mollis** *Ridl.* Siberut, 14546. Flowers pale yellow.

This slightly differs from the plant I originally found in Malacca in having fewer leaf-nerves, and smaller bracts. The fruit when dry is strongly lobed.

**L. inaequalis** *Bl.* Siberut, 14510. Flowers whitish.

**Hydnophytum formicarum** *Jack* var. Siberut, 14563. Flowers white.

This specimen has no flowers or fruit. The leaves are stiff, obovate with quite round tips and very inconspicuous nerves, 6 cm. long, 4.5 cm. wide or less, the terminal ones on the shoots are elliptic in shape. I have seen no other specimens nor is there any figure in Beccari's Malesia, vol. ii. at all resembling this in foliage.

**Myrmecodia echinata** *Jack*. Siberut, 12299. Flowers white.

### Compositae.

**Vernonia javanica** *Bl.* Siberut, 14631. Flowers white (i.e. pappus); 30 to 35 ft. high.

**Blumea chinensis** *DC*. Siberut, 14072. Flowers yellow.

**Wedelia biflora** *DC*. Sipora, 14791. Flowers yellow.

**Erechtites valerianaefolia** *DC*. Siberut, 14546. Fruit white.

**Eclipta alba** *Hassk*. Siberut, 14480. Flowers white.

### Lobeliaceae.

**Scaevola Koenigii** *Vahl*. Siberut, 12298. Flowers white; 30 ft. high.

### Vacciniaceae.

**Vaccinium Hasselti** *Miq*. Siberut, 14603. Flowers pink.

**V. acuminatissimum** *Miq*. Sipora, 14809. Flowers greenish-white, calyx and stems red.

### Ericaceae.

**Rhododendron longiflorum** *Lindl*. Siberut, 14094. In fruit only.

### Myrsinaceae.

**Maesa macrothyrsa** *Miq*. Sipora, 14756. Creeper.

**M. membranifolia** *Mez*. Sipora, 14642. Flowers white.

**Ardisia macrophylla** *Reinwdt*. Sipora, 14740. Flowers white; 15 ft. high.

**Ardisia latipes** *Ridl.* n. sp.; subsimilis *A. biniflorae* Ridl. panicula longiore multiflora ramis basibus dilatatis, foliis coriaceis paucis ad apices, omnibus specibus distincta.

*Frutex* 1.5–3 m. alta, *caule* applanato valida, ramis patentibus superne teretibus basibus complanatis triangularibus, 20 cm. longis; *foliis* paucis terminalibus coriaceis glabris lanceolatis vel elliptico-lanceolatis acutis basibus cuneatis, fusco-punctatis, nervis 12-, 13-paribus, secundariis 1 inter paribus omnibus, nervulis pluribus flexuosis, reticulationibus majoribus, omnibus in utro

latere elevatis, costa crassa, 7–12 cm. longis, superne sulcatis; *paniculis* terminalibus, 3–4 cm. longis; *bracteis* ovatis; *pedicellis* crassis 3 mm. longis; *sepalis* ovatis rotundatis marginibus pallidis fimbriatis, glandulis pluribus in medio; *corollae* lobis ovatis obtusis, 2 mm. longis, glandulis paucis; *staminibus* eglandulosis corolla aequantibus; *stylo* haud corolla superanti glanduloso.

Siberut, 10579. Flowers pink; 5 to 6 ft. high.

This shrub is peculiar in the curiously dilated buttress-like bases of the branches.

**Ardisia omalocarpa** *Ridl.* n. sp.; species *A. pentagonae* DC. approximata in drupa superne deplanata, seminibusque applanatis differt; *A. ferruginea* Mez etiam affinis sed drupa in ea globosa.

*Frutex*, ramis gracilibus dense ferrugineo-furfuraceis; *foliis* lanceolatis obtuse acuminatis basibus angustatis acutis, tenuiter coriaceis superne laevibus, subtus rufescentibus (in sicco) squamulis rufescentibus tectis, nervis tenuibus indistinctis 10-paribus arcuantibus, 7 cm. longis 1.5 cm. latis; petiolis 3 mm. longis ferrugineo-furfuraceis; *panicula* terminali gracili furfuracea, 3 cm. longa; *cymis* paucis; *floribus* paucis albis, pedicellis 5 mm. longis glabris; *bracteis* minutis lanceolatis acutis; *sepalis* ovato-lanceolatis acutis 1 mm. longis; *corolla* et *stamina* desunt; *drupa* superne depressa obscure 10-lobata, basi angustata, 3 mm. longa, 4 mm. lata.

Siberut, 14095. Flowers white.

This species is peculiar in the shape of the fruit and seed. The drupe is flat and depressed at the top, wider than long and obscurely ten-lobed, the base is narrowed into a kind of pseudo-stalk, the seed flat, round and bun-shaped. Nearly all the fruits and seeds of this large genus are globose. There is however, a parallel to this peculiar fruit in *Ardisia pentagona* DC. of Hongkong.

**Labisia pothoina** *Lindl.* Siberut, 14075; flowers pale lilac. Sipora, 14746; flowers white.

**Aegiceras majus** *Gaertn.* Siberut, 13074; flowers white.

## Sapotaceae.

**Madhuca lanuginosa** *Ridl.* n. sp.; species *M. erythrophyllae* Lam. affinis foliis oblanceolatis glabris nervis pluribus differt.

*Arbor* magna; *foliis* coriaceis glabris oblanceolatis acuminatis acutis, basibus cuneatis, nervis 18-, 20-paribus subtus elevatis, nervis secundariis brevibus, nervulis paucis inarcuantibus, reticulationibus laxis, 15 cm. longis, 5–6 cm. latis; petiolis 1 cm. longis basibus incrassatis primo lanuginosis mox glabris; *floribus* infra folia fasciculatis densis; *pedicellis* crassis ferrugineo-lanatis 1 cm. longis; *bracteis* brevibus ovatis coriaceis glabris; *sepalis* 4, exterioribus crasse coriaceis ovatis mucronatis ferrugineo-lanatis 5 mm. longis, interioribus 2 lanceolatis acuminatis tenuioribus, hirtis brevioribus; *corollae* tubo brevi lobis 6, oblongis obtusis extus hirtis, aequilongis; *staminibus* 20–30, filamentis nullis,

antheris linearibus, loculis ad apices et bases liberis; *ovario* conico; *stylo* validulo sepalis breviore.

Siberut, 10600.

This certainly resembles most closely *M. erythrophylla* Lam. (*Bassia erythrophylla* King and Gamble) of Penang, of which however, we only know the fruits, but the leaves are rather smaller with closer nerves and a different nervation.

STYRACEAE.

**Symplocos celastrifolia** *Griff.* Siberut. Flowers white; stamens pinkish; large tree.

**S. fasciculata** *Zoll.* Pagi, 14639. Fruit green; 5 to 10 ft. high.

EBENACEAE.

**Maba carpinifolia** *Ridl.* n. sp.; *M. sumatranae* Miq. affinis sed foliis multo tenuioribus nervis prominentibus minus hirtis, paniculis longioribus et laxioribus.

*Frutex* 3 m. ramis gracilibus, pilis rufescentibus appressis tectis; *foliis* alternis herbaceis lanceolato-ellipticis acuminatis basibus angustatis subacutis vel obtusis, nervis subtus multo elevatis hirtis 6–8-paribus, costa subtus prominente appresse hirta superne depressa, 5.5 cm. longis, 2–2.5 cm. latis; petiolis hirtis 2 mm. longis; *paniculis* masculis 2 cm. longis hirtis; *floribus* circiter 12 flavescentibus parvis; *bracteis* lanceolatis acutis acuminatis brevibus; *pedicellis* vix longioribus; *calyce* campanulato, lobis 3 acutis hirtis; *corolla* 5 mm. longa tubulosa basi dilatato, lobis ovatis acutis appressis sericeis; *staminibus* 12, 3 brevissimis, 9 longioribus, antheris lanceolatis mucronatis, filamentis gracilibus; *pistillodio* conico acuminato. *Flores feminei* desunt.

Siberut, 14564. Unopened flower yellowish; 10 ft. high.

APOCYNACEAE.

**Chilocarpus aurantiacus** *Ridl.* n. sp.; ab omnibus speciebus descriptis distinctis in paniculis elongatis axillaribus.

*Frutex* scandens glabra, *caule* obscure tetragona; *foliis* coriaceis obovato-oblanceolatis basibus longe angustatis, nervis 15-paribus gracilibus subtus elevatis in intramarginali arcuantibus, 7 cm. longis, 2 cm. latis, petiolis 5 mm. longis; *paniculis* axillaribus, 8 cm. longis; *bracteis* ovatis brevissimis; *pedicellis* 2 mm. longis; *calycis* lobis oblongo-ovatis imbricatis apicibus rotundatis; *corolla* 8 mm. longa, tubo cylindrico basi dilatato petalis ovato-rotundis contortis, squamis in fauce nullis; *antheris* in basi tubi basibus bifidis; *stylo* brevi; *stigmate* parvo pulvinato; *capsula* lignosa oblonga, valvis 4 cm. longis, 1.5 cm. latis, 2 mm. crassis; *seminibus* copiosis nigris in pulpo immersis.

Siberut, 14580. Flowers orange; creeper.

Allied to an undescribed Borneo species, *Haviland* 2299 and *Beccari* 2018, but the nervation is different, and flowers larger and dilate at the base.

**Rauwolfia spectabilis** *Miq.* Sipora, 14730. Flowers white.

**Alyxia selangorensis** *King & Gamble.* Siberut, 14089. Fruit green.

**Cerbera lactaria** *Ham.* Siberut, 14525. Flowers white.

**Vallaris lancifolia** *Hook. fil.* Siberut, 14612. Flowers white; creeper.

**Parsonsia spiralis** *Wall.* Siberut, 14466. Flowers white, blotched brown.

ASCLEPIADACEAE.

**Sarcolobus globosus** *Wall.* Siberut, 14537. Flowers green with brown markings.

**Tylophora tenuis** *Bl.* Siberut, 14467. Flowers dull crimson.

**Hoya multiflora** *Bl.* Siberut, 14477. Flowers waxy-white, tipped with yellow.

**H. lasiantha** *Bl.* Siberut, 14512.

**Hoya variifolia** *Ridl.* n. sp.; *H. parviflorae* Wt. affinis, gynostemio in toto differt, lobis coronae obtusis bifidis, foliis dimorphis.

*Scandens* gracilis internodiis longis, *foliis* carnoso-coriaceis dimorphis ellipticis obtusis, basibus angustatis, 1.5 cm. longis, 5 mm. latis, atque lineari-lanceolatis utrinque acuminatis 4 cm. longis, 2 mm. latis, petiolis vix distinctis; *umbellis* 18-floris; *pedunculis* gracilibus 2 cm. longis; *pedicellis* 1 cm. longis; *floribus* 2 mm. latis brunnescentibus; *sepalis* oblongis obtusis glabris; *corollae* lobis ovatis superne velutinis; *gynostemio* brevi, lobis coronae carnosis oblongis obtusis bifidis, inferiore concavo superiore breviore deflexo, oblongo obtuso; *antheris* brevibus lineari-oblongis; *pistillo* conico; *stylo* brevi; *stigmate* parvo rotundato.

Sipora, 14793. Flowers pinkish and brownish.

**Dischidia hirsuta** *DC.* Siberut, 10590.

BORAGINACEAE.

**Tournefortia tetrandra** *Bl.* Siberut, 13080. Flowers greenish white; creeper.

CONVOLVULACEAE.

**Ipomoea pes-caprae** *Roth.* Siberut, 1444. Flowers purple, base white.

SOLANACEAE.

**Solanum parasiticum** *Bl.* Sipora, 14769. Flowers white.

**Physalis pubescens** *Linn.* Siberut, 13096. Flowers pale yellow, centre chocolate.

SCROPHULARIACEAE.

**Limnophila villifera** *Miq.* Siberut, 14478. Flowers mauve.

**Aeschynanthus radicans** *Jack*. Siberut, 10586. Flowers red.

**Didissandra minor** *Ridl*. n. sp.; *D. elongatae* Clarke affinis, sed multo minore, sepalis angustioribus.

*Herba* 8–15 cm. alta, hirta, *foliis* ovatis vel ellipticis obtusis, basibus rotundatis vel breviter cuneatis superne glabris vel sparse hirtis, pilis multi-cellularibus, subtus in marginibus et costa nervisque 6-paribus hirtis, nervulis transversis paucis, 4 cm. longis, 2.5 cm. latis; petiolis hirtis inferioribus 2 cm. longis, superioribus brevibus; *racemis* 6-floris gracilibus hirtis 4.5 cm. longis; *floribus* parvis albis binis, *pedicellis* brevissimis; *sepalis* 5 linearibus acuminatis hirtis 2 mm. longis; *corollae* tubo glabro, 3 mm. longo, lobis superioribus brevibus oblongis, labio inferiore oblongo multo longiore bilobo, lobis rotundatis; *staminibus* 4, binis, filamentis quam tubum corollae longioribus spiraliter tortis; *stylo* breviore; *stigmato* parvo bilobo; *capsula* angustissima lineari acuminata pubescente.

Siberut, 10591. Flowers white.

This may be a form of *D. elongata*, Clarke, Cyrtand. p. 67; *Didymocarpus elongatus* Jack, Trans. Linn. Soc. xiv. 37.

**Loxonia acuminata** *Bl.* Siberut, 14519; flowers white, blotched red; the plant is less hairy than usual. Sipora, 14689; flowers pale green to white.

**Cyrtandra oblongifolia** *Benth*. Siberut, 14456; flowers white. Sipora, 14804; flowers white, bracts dull crimson within, pinkish green outside.

**Cyrtandra chiritoides** *Ridl*. n. sp.; affinis *C. integrifoliae* Clarke sed caule erecto, petiolis brevioribus, floribus majoribus differt.

*Fruticulus* lignosus gracilis 18 cm. altus, *foliis* alternis herbaceis tenuibus ovatis vel lanceolatis breviter obtuse acuminatis basibus rotundatis vel breviter cuneatis, nervis inconspicuis 4-paribus puberulis vel hirtis, marginibus obscure serrulatis hirtis, 5.5–7 cm. longis, 3.5 cm. latis; petiolis inferioribus gracilibus, 9 cm. longis, superioribus 3 cm. longis hirtis; *glomerulis* axillaribus trifloris in bracteis 2 ad basin connatis lanceolatis pubescentibus 5 mm. longis; *calyce* tubuloso 5 mm. longo, lobis 2 acuminatis inaequalibus hirtis; *corollae* albae tubo basi tubuloso 1 cm. longo superne dilatato infundibuliformi 1 cm. longo lobis ovatis acuminatis, extus longe hirtis in dorsis et marginibus intus glabris 5 mm. longis, limbo 2 cm. lato; *staminibus* 2 brevibus; *stylo* vix 5 mm. longo; *bacca* cylindrica acuminata 1 cm. longa, 3 mm. crassa suberosa.

Sipora, 14651. Flowers white.

**Cyrtandra insularis** *Ridl*. n. sp.; species *C. pendulae* Bl. affinis, sed pedunculo brevissimo, foliisque breviter petiolatis differt.

*Fruticulus* lignosus, *foliis* alternis versus apicem congestis ellipticis vel ovatis acuminatis serratis, basibus cuneatis superne

glabris, nervis 7–8-paribus subtus dense fulvo-hirtis elevatis, 14 cm. longis, 7 cm. latis; petiolis 6 cm. longis dense hirtis; *glomerulis* axillaribus; *pedunculis* 2 mm. longis; *bracteis* 2, ovatis, hirtis 1 cm. longis; *calyce* tubuloso hirto dentibus longis 5 cylindricis 1.5 cm. longis; *corolla* virescente et roseo tincta, tubo basi cylindrico superne infundibuliformi 2.5 cm. longo, lobis ovato-oblongis acutis, omnino extus hirtis 1 cm. longis; *stylo* brevi crasso hirto; *stigmate* magno oblongo papilloso.

Siberut, 13075. Flowers greenish and pinkish.

**C. decurrens** *De Vr.* Sipora, 14745. Flowers white.

The specimen has shorter petioles than usual and more strongly serrate leaves.

**Didymocarpus labiatus** *Ridl.* n. sp.; affinis *D. violascenti* Ridl. sed foliis minoribus corolla multo minore glabra, alba.

*Herba*, caule brevi per-dense pilis brunneis nitidis tecto; *foliis* ovato-ellipticis marginibus crenulatis subacutis basibus obtusis superne pilis longis sparse munitis, subtus costa nervisque 7-paribus et nervulis dense hirtis, 5 cm. longis, 3.5 cm. latis; petiolis 5 mm. longis dense hirtis; *racemo* gracillimo 8 cm. longo hirto; *floribus* albis paucis in paribus; *bracteis* linearibus hirtis; *pedicellis* 5 mm. longis hirtis; *sepalis* 5 lanceolatis liberis acutis extus hirtis 2 mm. longis; *corolla* 5 mm. longa, alba, tubo fere bis sepalis longiore, limbo bilabiato, labio superiore subcucullato inferiore apice rotundato; *staminibus* 2 filamentis tubo corollae longioribus, antheris conniventibus oblongis; *stylo* 5 mm. longo; *stigmate* subpeltato.

Siberut, 13083. Flowers white.

BIGNONIACEAE.

**Dolichandrone Rheedii** *Seem.* Siberut, 14550. Height 20 ft.

ACANTHACEAE.

**Staurogyne Griffithiana** *Kze.* Siberut, 13099. Flowers white.

**S. setigera** *Kze.* Siberut, 13100; flowers white and red. Sipora, 14701; flowers white.

**Staurogyne citrina** *Ridl.* n. sp.; *S. racemosae* Kze. affinis, sed undique glabra foliis longioribus angustioribus in sicco haud erubescentibus, floribus citrinis.

*Herba* rigida, erecta, 30 cm. alta, vix ramosa, glabra, *foliis* herbaceis lanceolatis acuminatis, basibus longe-attenuatis, nervis 10-paribus gracilibus arcuantibus, 10 cm. longis, 2.6 cm. latis; petiolis gracilibus 1–1.4 cm. longis; *racemo* laxo 10 cm. longo; *floribus* singulis, remotis citrinis; *bracteis* linearibus acuminatis 2 mm. longis pedicellis aequantibus; *sepalis* liberis ferme ad basin 5 linearibus acuminatis; *corolla* 1 cm. longa, basi angustata superne dilatata cylindrica, lobis brevibus aequalibus rotundatis; *staminibus* 4, haud exsertis, antheris ellipticis rotundatis; *stylo* breviore, *stigmate* oblongo lobis 2 lateralibus; *capsula* oblonga 4 mm. longa.

Siberut, 14098. Flowers lemon-yellow.

Certainly nearest to *S. racemosa* Kze. of Penang, but quite glabrous, the stem rather woody, leaves longer and narrower, drying yellowish, the flowers smaller and lemon-yellow; an unique colouring in the genus.

**Acanthus ilicifolius** *Linn.* Siberut, 12295. Flowers white and violet; 6 ft. high. Unusually tall plants.

**Eranthemum ovatifolium** *Clarke ms.* Sipora, 14701. Flowers white.

### Verbenaceae.

**Callicarpa rubella** *Lindl.* Siberut, 14464. Flowers lilac.

**Premna divaricata** *Wall.* Sipora, 14647.

**Premna sumatrana** *Ridl.* n. sp.; *P. foetidae* Reinwdt. affinis sed foliis minoribus ovatis, calycis dentibus subacutis.

*Frutex* 3 m. pubescens, *foliis* ovatis cuspidatis basibus latis truncatis, rotundatis vel subcordatis tenuiter coriaceis, glabris vel costa puberula, nervis 6-paribus tenuibus paulle subtus elevatis, 7–10 cm. longis, 5–6 cm. latis; petiolis 2–3 cm. longis puberulis; *corymbo* terminali 4 cm. longo, 4 cm. lato, pubescente; *bracteis* anguste lanceolatis; *calyce* campanulato puberulo, dentibus 5 subacutis, 2 quam alii longioribus; *corollae* tubo campanulato intus lanigero lobis ovatis obtusis; *staminibus* longe exsertis, filamentis gracilibus, antheris ovoideis; *stylo* longo gracili apice incrassato; *ovario* subgloboso; *bacca* globosa, calyce accrescente patelliformi.

Siberut, 14453. Flowers white; 10 ft. high.

The calyx is hardly bilabiate, but two of the teeth are broader, acuter and longer than the other three.

**Vitex pubescens** *Vahl.* Siberut, 14529. Flowers white and pale purple.

**Clerodendron squamatum** *Vahl.* Pagi, 14640. Flowers red; fruit green.

### Labiatae.

**Dysophylla auricularia** *Bl.* Siberut, 14532. Flowers white.

**Gomphostemma microcalyx** *Prain.* Sipora, 14803. Flowers orange-yellow.

There are no flowers on the specimen and the calyx is less woolly than usual, but I think it is this species.

### Polygonaceae.

**Polygonum barbatum** *Linn.* Siberut, 14481. Flowers white.

**Aristolochia Klossii** *Ridl.* n. sp.; species *A. ungulifoliae* Mast. affinis, sed foliis ovatis cordatis, labello multo latiore et hirto.

*Frutex* scandens caulibus costatis 2 mm. crassis internodiis 12 cm. longis; *foliis* ovatis cordatis obtusis chartaceis sinuatis lobis basalibus latis, nervis 5-paribus e sinu subtus elevatis, secondariis et reticulationibus subtus elevatis, 15 cm. longis a basi sinus, 11.5 cm. latis, lobis 3 cm. longis; petiolis 4 cm. longis; *racemis* axillaribus sessilibus 4 cm. longis; *floribus* circiter 15 kermesinis; *bracteis* brevibus ovatis; *pedicellis* cum ovariis 7 mm. longis; *perianthii* tubo basali brevi, 2 mm. longo, parte dilatato ovoideo 7 mm. longo, tubo terminali 1 cm. longo, lateribus oris ovatis erectis, labello elliptico basi angustato mucronulato superne hirto, 2 cm. lato; *staminibus* 6, columna glabra; *stigmatibus* 6 conicis in cupulo undulato.

Sipora, 14767. Flowers deep crimson, white at base; sheath (lip) pinkish, edge crimson.

NEPENTHACEAE.

**Nepenthes Reinwardtiana** *Miq.* Siberut, 12288. Cup pale green.

**N. phyllamphora** *Willd.* Siberut, 12286. Cup green and crimson.

PIPERACEAE.

**Piper firmum** *C. DC.* Siberut, 10595. On a tree; male.

The only specimen I have seen of Miquel's *Muldera firma*, and the only description of it, is that of the female plant which has very small leaves. The Siberut specimen is of a male plant, with much larger leaves of the same texture, and the shape and venation of Miquel's plant; they are oblong-ovate, very stiff, 10 cm. long and 3 to 5 cm. wide. The peppers vary very much in foliage, but I believe this to be the male of Miquel's and Decandolle's plant. The male spike is rather slender, 5 cm. long on a peduncle 3 cm. long, the flowers are very close set, sessile, the edges of the bract-cup rounded, broad, narrowed at the base; stamens 3, in a mass of hair.

**P. muricatum** *Bl.* Siberut, 13076; flowers white. Sipora, 14748. Fruit greenish orange; 2 feet tall.

In these specimens the leaves are rather narrower than usual.

**P. majusculum** *Bl.* Sipora, 14799. Flowers pale dull green.

**P. crassipes** *Korth.* Siberut, 14088. Fruit brown.

**P. boehmeriaefolium** *Wall.* Sipora, 14792. Flowers white; leaves unusually large.

CHLORANTHACEAE.

**Chloranthus officinalis** *Bl.* Siberut, 14074. Fruit pale green; 8 ft. high. This is unusually big for this plant.

**Horsfieldia Lemanniana** *Warb.* Siberut, 14597. Fruit yellow to green; 40 ft. tall.

**H. Irya** *Warb.* Sipora, 14760. Flowers dull yellow; 40 ft. tall.

**H. crassifolia** *Warb.* Siberut, 14568. Flowers green; 20 ft. tall.

**Knema glauca** *Warb.* Siberut, 14496; fruit brown; 10 ft. high. Siberut, 14569; fruit orange brown; 40 ft. high.

**K. laurina** *Warb.* Siberut, 13092. Flowers red; fruit red; 10 ft. tall.

**Myristica maxima** *Warb.* Sipora, 14772. Height 40 ft.

## LAURACEAE.

**Dehaasia microcarpa** *Bl.* Siberut, 14457; fruit red; 15 ft. high. Sipora, 14755; ripe fruit scarlet. (These colours no doubt refer to the brilliant coloured peduncle.)

**Endiandra crassifolia** *Ridl.* n. sp.; specie nullo affinis, a *E. macrophylla* Bl. differt foliis haud minute reticulatis, floribus parvis, staminibus hirtis.

*Arbor* 5 m. *foliis* coriaceis ellipticis obtusis acuminatis, basibus angustatis cuneatis, nervis 5-paribus superne depressis, subtus elevatis, nervulis paucis subtus elevatis, 18 cm. longis, 12 cm. latis; petiolis crassis 2 cm. longis; *paniculis* pubescentibus laxis 7 cm. longis vel brevioribus; *bracteis* ovatis acutis 1 mm. longis; *pedicellis* 5 mm. longis; *floribus* 2 mm. longis roseo-flavis; *sepalis* ovatis obtusis 3 pubescentibus; *petalis* longioribus 3 ovatis obtusis; *staminibus* 9, antheris bilocularibus, filamentis hirtis; *ovario* oblongo glabro, *stylo* cylindrico; *stigmate* discoideo.

Siberut, 14593. Buds pink and yellow; 15 ft. high.

**Litsea sebifera** *Bl.* Sipora, 14706. Height 40 ft.

**Litsea tenuipes** *Ridl.* n. sp.; *L. castaneae* Hook. fil. affinis, differt in foliis majoribus oblongo-lanceolatis et acuminatis, perianthii lobis majoribus pedunculis et filamentis glabris.

*Arbor* 10 m. *foliis* tenuiter coriaceis, lanceolatis vel oblongo-lanceolatis acuminatis, basibus paullo angustatis obtusis; 21 cm. longis, 6 cm. latis; nervis subtus elevatis 12-, 13-paribus superne depressis, costa superne plana subtus angulata, reticulationibus minutis elevatis subquadratis; petiolis 15 mm. longis; *racemis* pluribus axillaribus infra folia, *pedunculis* gracilibus, glabris 1 cm. longis; *floribus* in capitulo 5 flavis; *bracteis* inaequalibus 2 ovatis, 2 crassioribus et brevioribus, rotundato-cymbiformibus extus sericeo-pubescentibus 4 mm. longis; *pedicellis* brevibus sericeis; *perianthii* lobis oblongo-linearibus glabris; *staminibus* 8, filamentis longis filiformibus glabris basibus dilatatis, glandulis oblongis breviter pedicellatis, antheris quadratis. *Flores feminei* et *fructus* desunt.

Sipora, 14751. Flowers yellow; 30 ft. high.

**Loranthus fasciculatus** *Bl.* Sipora, 14657. Flowers red; stamens yellow tipped red.

I have not seen a specimen of the Javanese plant, but Blume's figure is quite like the Sipora specimen.

EUPHORBIACEAE.

**Actephila javanica** *Miq.* Siberut, 10578; fruit green; 8 to 9 ft. high. Sipora, 14667; fruit green; 5 ft. tall.

**Cleistanthus pseudo-pallidus** *Jabl.* Sipora, 14698. Flowers greenish and yellowish; 10 ft. high.

**Glochidion borneense** *Boerl.* Siberut, 14588, 14099. Fruit crimson.

**Breynia discigera** *Müll.* Siberut, 10587, 14559; fruit red; 10 ft. high. Sipora 14813; fruit red; 3 to 4 ft. high.

**Baccaurea lanceolata** *Müll.* Sipora, 14722. Flowers waxy yellow, petals white.

**Antidesma microcarpum** *Miq.* Sipora, 14683. Flowers pale brownish; 10 ft. high.

**A. tetrandrum** *Bl.* Siberut, 14462. Flowers yellow; 10 ft. high.

**Galearia phlebocarpa** *Hook. fil.* Sipora, 14715. Flowers green.

**Ostodes macrophylla** *Benth.* Siberut, 14562. Flowers yellow; 30 ft. high.

**Trigonostemon indicus** *Hook. fil.* Siberut, 14610. Flowers dark red. 5 to 10 ft. high.

**Trigonostemon sanguineus** *Ridl.* n. sp.; affinis *T. longifolio* Baill. sed foliis lanceolatis basibus angustatis pubescentibus, racemis brevibus.

*Frutex* 3 m. partibus juvenibus scabride hirtis alabastris sericeis, caulibus cicatricibus petiolaribus ovatis 2 mm. longis ornatis; *foliis* chartaceis lanceolatis acuminatis basibus longe attenuatis glabris, costa utrinque elevata et marginibus rigide pilosis exceptis, nervis 11-,12-paribus paullo elevatis, 26 cm. longis, 8.5 cm. latis; petiolis 6–13 mm. longis hirtis; *racemo* simplice 9 cm. longo hirto; *floribus* subtus 2–3 glomeratis superne singulis; *bracteis* lanceolatis pedicellorum dimidio aequantibus hirtis; *pedicellis* 2 mm. longis hirtis; *floribus* masculis, 6 mm. latis; *sepalis* rotundato-obovatis glabris; *petalis* multo majoribus rotundatis glabris kermesinis; *antheris* in columna 3, bicornutis disco magno cupuliformi. *Flores feminei* et *fructus* desunt.

Sipora, 14697. Flowers very deep crimson; 10 ft. high.

**Claoxylum indicum** *Hassk.* Sipora, 14711. Flowers pale yellowish.

**Wetria trewioides** *Bl.* Sipora, 14801. Flowers green.

**Mallotus leucocalyx** *Müll.* Siberut, 14488; fruit green. Sipora, 14770.

**M. cochinchinensis** *Lour.* Pagi, 14634. Flowers white; 15 to 20 ft. high.

**Blumeodendron Kurzii** *Sm.* 14622, 14623. Fruit green; 30 to 40 ft. tall.

The fruit is globose, 4 cm. through, on stalks 1 cm. long; pericarp crustaceous, hard, hardly woody, 2 mm. thick; stigma persistent.

**Macaranga tanaria** *Müll.* Sipora, 14691. Flowers whitish green with green spikes.

**M. Hosei** *King.* Siberut, 14580. Male flowers pale yellow; 15 ft. high.

**Gelonium multiflorum** *Juss.* Sipora, 14177. Flowers greenish white.

**Gelonium rubrum** *Ridl.* n. sp.; affinis *G. glomerulato* Hassk. differt foliis crassioribus longius acuminatis, capsulis parvis rubris.

*Frutex* 1.2 m. glaber, ramorum cortice pallido; *foliis* rigide coriaceis ellipticis obtuse cuspidato-acuminatis, basi cuneatis, 10–10.8 cm. longis, 3–5.5 cm. latis, nervis 7, arcuantibus reticulationibus utrinque conspicuis (siccis flavescentibus) utrinque nitidis; petiolis 4 mm.; *floribus* paucis sessilibus in spica quam petiolus breviore bracteis latis ovatis fimbriatis; *capsula* globosa, 5 mm. longa rubra in valvis 3 coriaceis dehiscentibus.

Siberut, 14091. Fruit scarlet; flowers not seen; 5 ft. high.

**Clavistylus peltatus** *J. J. Sm.* Siberut, 14508. Male flowers yellowish.

## Urticaceae.

**Gironniera nervosa** *Planch.* Siberut. Fruit yellow; 30–35 ft. high.

**Conocephalus azureus** *Teysm. & Binn.* Siberut, 14549. Flowers buff-coloured.

**C. amoenus** *Hook. fil.* Siberut, 13085. Fruit (flowers) mauve; creeper.

The leaves are unusually small, but I think this is *C. amoenus*.

**Conocephalus oblanceolatus** *Ridl.* n. sp.; species affinis *C. subtrinervio* Miq., sed foliis latis obovatis nervisque magis horizontalibus.

*Frutex* caule 6 mm. crasso, *foliis* obovatis oblanceolatis obtusis, basi cuneatis subtus pallidis, 18 to 25 cm. longis, 10-13 cm. latis, nervis 11-paribus subtus elevatis, petiolis gracilibus 12 cm. longis; *capitulis* singulis 2 cm. in diametro, pedunculis 8 mm. longis; *bracteis* coriaceis ovatis cymbiformibus 5 mm. longis; *stipulis* coriaceis acutis cymbiformibus 1 cm. longis; *floribus*

*femineis* sessilibus oblongis, tubo perianthii 3 mm. longo, lobis ovatis pubescentibus apicibus incrassatis, ovario ellipsoideo.

Sipora, 14714. Flowers white on mauve; male flowers not seen.

**Ficus urophylla** *Wall.* Siberut, 14093. Fruit yellow.

**F. pisifera** *Wall.* Sipora, 14818. Figs green, spotted whitish; creeper.

**F. consociata** *Bl.* Siberut, 14584; large tree (no figs on the specimen, but I think this identification is correct). Sipora, 14747; creeper; figs orange and yellow, reverse of leaves russett-yellow.

**F. globosa** *Bl.* Siberut, 14551. Creeper; figs green.

**F. chamaecarpa** *Ridl.* n. sp.; in floribus femineis haec species *F. Treubii* King. approximat sed in foliis nec cordatis nec inaequilateribus, et multo minoribus differt omnino aliis speciebus cum ramis fructiferis prostratis.

*Frutex*, ramis subgracilibus, pilis appressis; *foliis* ovatis cuspidatis, basi angustatis, obtusis vix obliquis, superne sparse hirtis costa et nervis subtus densius hirtis, 13 cm. longis, 5 cm. latis; nervis 7-paribus; petiolis 1 cm. longis hirtis: *syconiis* pyriformibus costis 3 elevatis kermesinis, hirtis 1.4 cm. longis, in ramis laevibus glabris nudis fistulosis prostratis, internodiis 16 cm. longis, ramulis hirtis 9 cm. longis; *stipulis* ovatis; *bracteis* ad basin ovatis 2 mm. longis glabris; *floribus* masculis et galliferis non visis; *floribus femineis* brevi stipitatis obovoideis; *stylo* laterali gracili longo, apice hirto; *stigmate* clavato.

Sipora, 14675. Fruit dull crimson on prostrate branches .

This species is very distinct from all of this section of figs in its hardly irregular leaves not distinctly cordate at the base. The female flowers most closely resemble those of *F. Treubii*, but in other respects the plant is quite different.

**F. polysyce** *Ridl.* Siberut, 10497. Fruit green; 10 to 15 ft. high.

**F. Miquelii** *Hook. fil.* Sipora, 14674. Fruit green; 15 ft. high.

**F. staphylosyce** *Ridl.* Siberut, 10496.

**Ficus microsyce** *Ridl.* n. sp.; affinis *F. staphylosyce* Ridl. differt in foliis latis oblanceolatis basi inaequilateris multo majoribus.

*Arbor*, ramulis hirtis, *foliis* oblanceolato-ellipticis basibus inaequilateribus scabridis chartaceis marginibus, undulatis et saepe 4-dentibus latis versus apices, 19 cm. longis, 8 cm. latis; nervis 7-, 10-paribus; petiolis brevissimis vix 2 mm. longis hirtis; *syconiis* glomeratis in tuberculis trunci, flavis globosis puberulis, 5 mm. longis, in pedicellis gracilibus brevioribus; *bracteis* nullis, bracteolis in ore syconii ovatis glabris; *floribus masculis*, *sepalis* angustissimis lineari-lanceolatis, *stamine* uno, *galliferis* pro syconio majusculis obovoideo-globosis, pedicellatis; *floribus femineis*,

*sepalis* 2 lanceolatis acuminatis angustissimis, *ovario* pedicellato ellipsoideo utrinque attenuato curvo, *stylo* longo filiformi.

Siberut, 14609 (type); fruit yellow. Also collected at Sibolangit (North Sumatra), Dato Pulau, Siam valley, *Mohammed Nur* 7206.

**F. leucantatoma** *Miq.* Sipora, 14817. Figs green; 10 ft. high.

**F. lepicarpa** *Bl.* Siberut, 13072. Figs green; 10 ft. high. Sipora, 14721; figs dark green; 15 ft. high.

**F. ramentacea** *Roxb.* Sipora, 14754. Creeper; fruit scarlet.

**F. hispida** *Linn.* Sipora, 14641. Fruit green; 15–20 ft. high.

**F. diversifolia** *Bl.* Siberut, 14572; creeper. Sipora, 14573.

**F. fulva** *Reinwdt.* Siberut, 10495. Height 15 ft.

**F. toxicaria** *Bl.* Siberut, 10596. Sipora, 14750.

**F. alba** *Reinwdt.* Siberut, 14475. Sipora, 14782.

**F. villosa** *Bl.* Siberut, 10593; figs brown. Sipora, 14797; figs bright russet.

**Elatostemma longirostre** *Ridl.* n. sp.; species *E. integrifolio* Wedd. affinis, foliis subtus hirsutis et marginibus serrulatis differt.

*Herba*, caulibus elatis gracilibus ramosis, breviter appresse-hirtis; *foliis* alternis oblique ovato-lanceolatis, 13–15 cm. longis, 5 cm. latis, longe acute cuspidato-acuminatis marginibus serrulatis basi rotundatis obliquo superne glabris, subtus dense appresse-hirtis in nervis nervulisque, nervis e basi tribus, nervulis a costa 6-paribus, raphidibus nullis; petiolis 3 mm. longis; *stipulis* obovatis cuneatis tridentatis; *capitulis* sessilibus 1 cm. in diametro glabris; *floribus masculis* pedicellatis acutis.

Siberut, 13098 (type); flowers white. Also Sibolangit, Bukit Kluang (North Sumatra), *Mohammed Nur* 7442.

**Pellionia longipetiolata** *Ridl.* n. sp.; ab aliis speciebus differt caule lignoso longe repente, foliis haud inaequilateribus basi rotundatis, petiolis longis, sepalis rotundatis reticulatis.

*Suffrutex* gracilis metralis, parte basali (ut videtur) in truncis arborum reptante; *foliis* 8–12 cm. dissitis alternis ellipticis acuminatis acutis, 11–15 cm. longis, 4–6 cm. latis, nervis 6-paribus, basi rotundatis obtusis subpeltatis glabris, raphidibus in facie superiore copiosis; petiolis gracilibus 5–6 cm. longis; *cyma mascula* laterali 4.5 cm. longa, 5 cm. lata hirta; *sepalis* 5 rotundatis apiculatis hirtis translucente reticulatis; *staminibus* 5 brevioribus, filamentis brevibus et crassis; antheris elliptico-oblongis loculis connectivo latiusculo disjunctis; *floribus femineis* et *acheniis* ignotis.

Sipora, 14624 (type), 14744; flowers pink. A rather smaller state.

Var. **hirta** *Ridl.* n. var.; foliis magis ovatis, basibus latioribus marginibus crenulatis vel undulatis, costis nervisque subtus et petiolis appresse hirtis.

Borneo: Sarawak; Mount Matang, July 1893, *Ridley*.

The Borneo plant has stiffer, more rounded leaves and is hairy, otherwise I see no difference from the other plants.

**Pipturus argenteus** *Wedd.* Sipora, 14727. Flowers white.

**Boehmeria ramosissima** *Miq.* Sipora, 14819. Flowers whitish.

**Leucosyke capitellata** *Wedd.* Siberut, 14471. Albescent; 5 ft. high.

**Procris laevigata** *Bl.* Sipora, 14696.

ORCHIDACEAE.

**Microstylis trinervia** *Ridl.* n. sp.; *M. micranthae* Hook. fil. affinis, foliis trinervosis, sepalis petalisque ovatis, labello margine dentato, apice bifido distincta.

*Herba* repens et radicans 21 cm. longa vel ultra; *foliis* herbaceis circiter 12, elliptico-lanceolatis obtuse acuminatis inaequilateralibus basibus obtusis, 5 cm. longis, 16 mm. latis; nervis 3 multo elevatis; petiolis latis vaginantibus, 1 cm. longis; *racemo* gracili; *bracteis* lineari-lanceolatis acuminatis 2 mm. longis deflexis; *floribus* copiosis minimis flavis, *pedicellis* quam bracteae brevioribus; *sepalis* ovatis subacutis; *petalis* ovatis acutis; *labello* lato rotundato auriculato, fovea magna, dentibus 2 vel 3 brevibus, uno longiore in utroque margine, lobo medio subtriangulari bifido, dentibus longis acutis; *columna* brevi, stelidiis porrectis acutis.

Sipora, 14655. Flowers yellow.

The flower-spike in the specimen is very young, and the flowers in bud only. The plant being covered with mud is evidently a creeper on muddy banks, as is the allied *M. nemoralis Ridl.* The three nerves on the leaf are remarkably prominent beneath.

**M. congesta** *Rchb. fil.* Sipora, 14654. Flowers dull crimson.

**Liparis Klossii** *Ridl.* n. sp.; *L. pallidae* Lindl. affinis, sed floribus minoribus bracteisque brevioribus.

*Epiphyta, pseudobulbis* 3 elongatis basibus dilatatis, 3 cm. to 4 cm. longis; *folio* coriaceo oblongo-lanceolato subacuto, basi attenuato, basi attenuato 10-nervio, 22 cm. longo, 3 cm. lato; *racemo* 19 cm. longo gracili; *floribus* remotis circiter 40 obscure rubris; *bracteis* tenuibus lanceolatis acuminatis 3 mm. longis; *pedicellis* cum ovariis ferme 1 cm. longis; *sepalis* oblongo-obtusis deflexis 3 cm. longis, 1 mm. latis; *petalis* linearibus angustioribus; *labello* 5 mm. longo, 4 mm. lato obcuneato bilobo, basi lineari, carinis carnosis paullo elevatis in ungue, lobis rotundatis dentibus pluribus brevissimis obtusis in marginibus; *gynostemio* sigmoideo dimidio labello aequante; stelidiis brevibus obtusis latis.

Siberut, 14502. Flowers dull red.

This is allied to *L. pallida* Lindl., but the flowers are considerably smaller, and the bracts shorter.

**Liparis dissitiflora** *Ridl.* n. sp.; *L. pallidae* Lindl. affinis sed floribus dissitis parvis, labello bilobo nec denticulato.

*Epiphyta, pseudobulbis* oblongis basibus dilatatis 2 cm. longis 4 mm. crassis; *foliis* 2 tenuiter coriaceis oblanceolatis acutis elongatis basibus angustatis 6–15 cm. longis, 1 cm. latis; *racemo* gracili 13 cm. longo; *floribus* remotis parvis rubris et albis; *bracteis* papyraceis lanceolatis acuminatis 2 mm. longis; *pedicellis* gracilibus longioribus; *sepalis* oblongis obtusis; *petalis* brevioribus ovatis; *labello* basi carnoso oblongo, lateribus elevatis, lobo medio rotundato bilobo, callis 2 ad basin labelli; *gynostemio* apice curvo, stelidiis rotundatis.

Siberut, 14632. Flowers red and white.

**Dendrobium subulatum** *Hook. fil.* Sipora. Flowers white tinged with pink, yellow patch on lip.

**D. sinuatum** *Lindl.* Siberut, 14538. Flowers yellowish with brown markings.

**Bulbophyllum apodum** *Hook. fil.* Siberut, 14608. Flowers white.

**Bulbophyllum (Cirrhopetalum) Klossii** *Ridl.* n. sp.; species *B. eleganti* J. J. Sm. affinis, differt pedunculo brevi, sepalis petalisque acuminatis haud setiferis, sepalis lateralibus angustioribus.

*Epiphyta*, rhizomate gracile, *pseudobulbis* ovoideis 4-6 cm. longis, 1 cm. distantibus; *folio* coriaceo elliptice obtuso apice rotundato basi ad petiolum attenuato, 4 cm. longo, 1–1.5 cm. lato; *scapo* gracile 6 cm. longo; *floribus* pallide flavis circiter 8 in umbella; *bracteis* lineari-lanceolatis, 2 mm. longis; *sepalo* postico lanceolato longe acuminato apice gracili 2 mm. longo, lateralibus haud connatis lanceolato-linearibus basibus attenuatis apicibus acuminatis trinerviis 15 cm. longis, 2 mm. latis; *petalis* ovato-lanceolatis acuminatis glabris, sepalo postico aequilongis, labello brevi linguiformi carnoso basi lato; *gynostemio* pede longo libero curvo, stelidiis acutis erectis.

Siberut, 14100. Flowers pale yellow.

A fine large flowered species.

**Eria floribunda** *Lindl.* Siberut, 14490. Flowers white.

**Trichotosia calvescens** *Ridl.* n. sp.; affinis *T. poculatae* Ridl., floribus multo majoribus foliis et caule ferme omnino glabris.

*Epiphyta*, caulibus glabris 1.21 m. longis; *foliis* coriaceis lanceolatis acuminatis, basibus obtusis pilis nigris in basibus et marginibus aliter glabris 6–7 cm. longis, 1 cm. latis, vaginis 2–3 cm. latis, pilis nigris in ore; *racemo* brevissimo 1 cm. longo, rachide dense rufo-hirto; *floribus* paucis albescentibus in medio rosaceis; *bracteis* oblongo-ovatis 5 mm. longis, obtusis hirtis; *sepalo* postico lanceolato acuto extus rufo-hirto 1 cm. longo, lateralibus lanceolatis acutis 1 cm. longis, mento scrotiforme; *petalis* linearibus angustioribus glabris; *labello* basi angusto lineari carnoso, costis 2 validulis e basi ad lobum medium lobis lateralibus oblongis acutis,

lobo medio brevi lato rotundato breviter bilobo, lobis obscuris dentatis; *gynostemio* longiusculo sulcato ad pedem, *anthera* calvariformi tridentata.

Sipora, 14834. Flowers whitish-pinkish in centre, lip yellowish brown, base red.

**Trichotosia Teysmanni** *Kranzl.* Siberut, 14587.

**Agrostophyllum bicuspidatum** *J. J. Sm.* Siberut. Flowers white, spotted red. It is unusual for this plant to have red-spotted flowers.

**Claderia viridiflora** *Hook. fil.* Siberut, 12283.

**Spathoglottis plicata** *Lindl.* Siberut; flowers deep pink. Sipora, 14727; flowers pink.

**Coelogyne Rochusseni** *De Vriese* var. **plantaginea.**

Siberut, 14615. Flowers pale yellow and deep yellow in centre. This has the narrowed leaves and long pointed lip of Lindley's species *C. plantaginea*, now reduced to a form of *C. Rochusseni*.

**Eulophia squalida** *Lindl.* Siberut, 13081; flowers greenish russet, hood (upper sepal) white, lip pink. Sipora, 14780; petals greenish, striped brown; lip white, hood pink and brown.

**Plocoglottis foetida** *Ridl.* Siberut, 14591. Flowers brownish white, spotted brown; lip waxy yellow.

**Dipodium paludosum** *Rchb. fil.* Siberut, 14553. Petals pale yellow spotted crimson; lip white streaked crimson, centre yellow.

**Phalaenopsis sumatrana** *Korth.* Sipora, 14773. Flowers white, blotched brown crimson, hood white and mauve.

**Trichoglottis retusa** *Bl.* Siberut, 14574. Flowers greenish yellow, blotched brown; lip white with crimson markings.

**Renanthera micrantha** *Lindl.* Siberut, 14570. Flowers crimson. Epiphyte.

**Saccolabium pubescens** *Ridl.* Siberut, 14501. Flowers pinkish to white. Leaves narrower than usual.

**Thrixspermum lilacinum** *Rchb. fil.* Sipora, 14752. Flowers white to mauve, red patches on lip.

**Dendrocolla cerina** *Ridl.* n. sp.; *D. pardali* Ridl. affinis, sed bracteis multo minoribus, flore immaculato.

*Epiphyta, caule* brevi 5 cm. longo; *radicibus* pluribus; *foliis* crasse coriaceis oblongo-linearibus obtusis inaequaliter bilobis 3.5 cm. longis, 1 cm. latis; *pedunculis* 15–17 cm. longis rigidis; *racemis* tandem 6 cm. longis; *bracteis* plurimis proximis corniformibus apicibus recurvis rigide coriaceis; *pedicellis* 8 mm. longis; *floribus* cereo-flavis 1 cm. latis oblongis tenuibus; *sepalo* postico ovato, lateribus latis; *petalis* brevioribus obovatis rotundatis; *labello* ovato-oblongo (explanato), cuspide longo in apice lato; *gynostemio* brevi lato.

Siberut, 14524. Flowers waxy yellow.

The very thin flowers of the specimen have not preserved very well, and the only column I have seen was too much crushed to describe.

**Dendrocolla punctata** *Ridl.* n. sp.; affinis *D. carnosae* Ridl. sed foliis multo tenuioribus floribusque maculatis.

*Epiphyta, caule* gracili 5 cm. longo; *foliis* tenuiter coriaceis linearibus obtusis inaequaliter lobis 7.5 cm. longis 16 mm. latis; *pedunculis* gracilibus 5–6 cm. longis; *racemis* tandem 1 cm. longis; *bracteis* brevibus triangulari-ovatis acutis; *pedicellis* 5 mm. longis; *floribus* 5 mm. latis albis flavo-brunneo-maculatis; *sepalo* postico ovato acuto, lateralibus oblongis apicibus albo-pilosis, calcare brevi conico; *gynostemio* brevi; *anthera* magna cucullata.

Sipora, 14789. Flowers waxy white, spotted golden brown.

**Acriopsis javanica** *Lindl.* Sipora, 14704. Flowers red and white.

**Podochilus sciuroides** *Rchb.fil.* Siberut, 14451. Flowers white.

**Corymbis veratrifolia** *Bl.* Sipora, 14656.

**Lecanorchis malaccensis** *Ridl.* Siberut, 14595. Flowers white.

**Vrydagzynea bractescens** *Ridl.* n. sp.; affinis *V. nudae* Bl. differt in forma labelli et bracteis magnis albescentibus.

*Herba* 15 cm. alta, basi nudo; *foliis* tenuibus herbaceis ovatis acutis basibus cuneatis 2.2 cm. longis, 1 cm. latis; petiolis 2–4 mm. longis; *pedunculo* 4–5 cm. longo, racemo 6–, 8-floro; *bracteis* foliaceis lanceolatis acutis 8 mm. longis; *floribus* albis, ovariis cum pedicellis bracteis brevioribus; *sepalo* postico petalis adnato crasso lanceolato lateralibus lanceolatis obtusis; *petalis* tenuioribus angustis; *labello* oblongo-lineari subspathulato, marginibus basalibus sursum curvis, lobo medio ovato lateribus erectis, costa crassa carnosa e basi labelli ad basin lobi medii calcare elliptico versus apicem obtusum attenuato, glandulis interioribus globosis pedicellis filiformibus fere ad basim calcaris attingentibus; *gynostemio* brevi, lobis lateralibus longis carnosis; *anthera* lanceolata rostrata; *rostello* acuminato integro.

Siberut, 11443. Flowers white.

### Zingiberaceae.

**Globba variabilis** *Ridl.* Siberut, 13095; flowers orange-yellow to orange-red. Sipora, 14658; flower orange-yellow; stems red proximally.

These plants are more hairy than the typical Pahang plant, but I have collected somewhat similar forms in Kelantan.

**G. candida** *Ridl.* Sipora, 14681. Flowers pale violet-white; calyx white. The original plant collected by me in Berastagi, north Sumatra, had quite white flowers.

**Hedychium coronarium** *Linn.* Sipora, 14707. Flowers white.

**Hedychium longicornutum** *Bak.* var. **minor** *Ridl.* n. var.; *epiphyta* 4.7 cm. alta; *floribus* in spica paucis ad 3; *bracteis* lanceolatis angustioribus.

Siberut, 14599 (type); flowers orange; on a hedge-tree. Sipora 14523; fruit orange.

A reduced form of this Malay peninsular plant. Curtis gathered also typical *H. longicornutum* in Sumatra.

**Gastrochilus roseo-punctatus** *Ridl.* n. sp.; *G. longiflorae* Wall. affinis foliis lanceolatis basibus attenuatis inaequilateris, floribus singulis roseo-punctatis differt.

*Herba rhizomate* repente 2 cm. longo; *folio* singulo in caule, 4 cm. longo, lanceolato subacuto inaequilaterali longe ad basin attenuato glabro, costa prominente, 21 cm. longo, 4 cm. lato, petiolo gracile 6 cm. longo, vagina 5 cm. longa, ligula bifida, lobis longis lanceolatis acuminatis, 1 cm. longa; *flore* singulo e vagina orto; *calyce* tubuloso, limbo lanceolato 8 mm. longo; *corollae* tubo basi gracili albo 5 cm. longo lobis oblongis obtusis; *labello* saccato-campanulato apice bilobo 1 cm. longo, 7 mm. lato albo intus kermesino-punctato lobis rotundatis filamento gracili; *anthera* lineari.

Sipora, 14693. Flowers white, spotted crimson.

**Elettariopsis puberula** *Ridl.* n. sp.; species *E. pubescente* Ridl. affinis sed differt in calyce infundibuliformi rigido costato lobis aequalibus.

*Herba caule* 60 cm. alto, basi vaginis pubescentibus tecto 13 cm. longo; *foliis* 10 oblongo-lanceolatis acuminatis cuspidatis basibus attenuatis superne glabris subtus puberulis 23 cm. longis 3.5 cm. latis superioribus minoribus, nervis copiosis tenuibus approximatis, vaginis costatis pubescentibus; *spica* e basi orta 8 cm. longa ascendente, ramis 2 vel 3, 1 cm. longis; *bracteis* oblongo-lanceolatis striatis mucronulatis 7 mm. longis; *floribus* binis; *pedicellis* gracilibus 6 mm. longis; *calyce* glabro infundibuliformi costato, lobis 3 lanceolatis aequalibus 6 mm. longis; *corollae* tubo calycem vix superantem, lobis lanceolatis 6 mm. longis; *labello* obovato albo 6 mm. lato.

Sipora, 14742. Flowers white.

The flowers of the specimen are very incomplete, but the plant is unlike any other species known to me. The stiff ribbed calyx with equal lobes is peculiar.

**Costus speciosus** *Linn.* var. **argyrophyllus** *Schum.* Siberut, 10575. Flowers white.

**Amomum apiculatum** *Schum.* Siberut, 14514. Flowers crimson.

**A. lappaceum** *Ridl.* ? Siberut, 13084. Fruit reddish orange. Resembles to some extent *A. lappaceum*.

**Hornstedtia triorgyale** *Bak.* Siberut, 10583; flowers red. Sipora, 14705; flowers crimson and gold.

**Hornstedtia parviflora** *Ridl.* n. sp.; species distincta ab omnibus minoribus, floribus parvis, labello integro.

*Herba rhizomate* lignoso 4 mm. crasso; *caule* foliifero 60 cm. alto; *foliis* elliptico-lanceolatis breviter acuminatis basibus attenuatis glabris, 30 cm. longis, 7 cm. latis; petiolis alatis ferme ad bases, 4 mm. longis; vaginis glabris cancellatis; ligula oblonga 4 mm. lata; *spica* a caule foliato distante, 8 cm. longa, 4 cm. crassa, superne dilatata; *bracteis* ovatis rotundatis tenuibus, inferioribus marginibus hirtis superioribus glabris, 2.3 cm. longis 1.4 cm. latis, striatis; *floribus* parvis rubris; *corollae* tubo 4 mm. longo, lobis oblongo-linearibus obtusis 3 mm. longis; *labello* integro lineari-oblongo 4 mm. longo; *anthera* lineari ecristata, hirta inter loculos.

Sipora, 14739. Flowers carmine.

**Phaeomeria imperialis** *Lindl.* Sipora. Flower crimson with white edges to the petals.

**Phaeomeria minor** *Ridl.* n. sp.; species ab omnibus distincta in statura nana, foliis et floribus parvis et bracteis exterioribus ovatis acutis.

*Herba* nana; *foliis* angustis lanceolatis acuminatis cuspidatis 40 cm. longis, 4 cm. latis, basibus late rotundatis; *pedunculo* 16 cm. longo vaginis oblongis obtusis tecto; *capitulo* 2.4 cm. lato; *bracteis* externis ovatis acuminatis 4 cm. longis; *bracteolis* spathaceis pallidis dentibus 2 ad apices pilosis; *calyce* roseo tubuloso dentibus 3, apicibus pilosis; *corolla* lobis lineari-oblongis cucullatis obtusis roseis; *labello* brevi tenui lineari-oblongo; *anthera* crassa ecristata oblonga apice retuso; *stigmate* magno ovato-peltato; *stylo* hirto.

Siberut, 14560. Flowers carmine; the flowers in bud only; the lip appeared to be yellow.

The smallest species in the genus.

**Plagiostachys sumatrensis** *Ridl.* n. sp.; *P. laterali* Ridl. affinis differt foliis latioribus velutinis, labello oblongo retuso.

*Herba, rhizomate* lignoso; *caule* valido 1 cm. crasso; *foliis* lineari-oblongis cuspidatis basibus attenuatis superne glabris subtus velutinis 52 cm. longis, 8 cm. latis, petiolis hirtis 2 cm. longis, ligula brevi truncata; *spicis* 2 lateralibus in pedunculo velutino; *bracteis* 2 magnis coriaceis velutinis 3 cm. longis; *spica* majore 8 cm. longa, 2 cm. crassa, altera laterali inferiore 4 cm. longa; *floribus* flavis dense congestis, *bracteolis* in cupula tubuloso-infundibuliformi connatis florem circumambientibus, marginibus laciniatis papillosis viscosis; *calyce* 2 mm. longo infundibuliformi laciniato, lobis brevibus viscosis; *corollae* tubo calyce aequilongo, lobis oblongo-linearibus obtusis 4 mm. longo; *labello* unguiculato, limbo carnoso decurvo oblongo subquadrato retuso mucronulato, costis tribus; *stamine* corollam paullo superante, filamento filiformi, anthera oblonga, calcara 2 ad basin divergentia dorso pubescente; *stylodiis* oblongis obtusis carnosis; *capsula* rotundato-oblonga costata 4 mm. in diametro.

Siberut, 10584. Flowers yellow.

**Alpinia nobilis** *Ridl.* Sipora, 14672. Flowers white, lip yellow.

**A. malaccensis** *Roscoe.* Siberut, 14454. Flowers white and red.

**Alpinia quadriloba** *Ridl.* n. sp.; affinis *A. Fraserianae* Bak., sed panicula laxiore foliis multo majoribus, labelli subaequaliter 4 lobo, et anthera cristata differt.

*Herba* caulibus validis 1.5 m. ferme 1 cm. in diametro ad bases, vaginis lineari-oblongis tectis; *foliis* pluribus elliptico-lanceolatis cuspidatis ad bases attenuatis 24 cm. longis 5.5 cm. latis, marginibus spinulosis; petiolis 1 cm. longis, ligula oblonga rotundata 6 mm. longa; *panicula* 8–15 cm. longa, ramis 7 mm. longis; *bracteis* deciduis lanceolatis 4 mm. longis; *calyce* infundibuliformi 7 mm. longo, lobis 3 aequalibus rotundatis; *corollae* tubo paullo longiore lobis oblongis obtusis 3 mm. longis; *labello* breviore ungue lineari canaliculato, lobis 2 erectis oblongis obtusis, limbo quadrifido lobis oblongis obtusis; *stamine* longiore, anthera lineari curva, connectivo in dorso prominulo, *appendice* parvo integro oblongo obtuso terminata.

Siberut, 14527 (type); flowers white and pink. Sipora, 12724; flowers pinkish to white.

## Marantaceae.

**Donax grandis** *Ridl.* Siberut, 14459; flowers white. Sipora, 14677; flowers white, centre pale yellow.

**Stachyphrynium sumatranum** *Schum.* Sipora, 14678, 14723. Flowers white, sepals crimson.

**S. Jagoranum** *Schum.* Siberut, 14544. Flowers white.

**Phrynium hirtum** *Ridl.* Siberut, 14513; flowers pink; fruit crimson. Sipora, 14807; leaves dull crimson.

This has also been collected in Sumatra by Beccari.

## Musaceae.

**Musa sumatrana** *Becc.* Ill. Hort. xxvii. 37. t. 375.

This species has never been fully described, Beccari's description being only that of the foliage of a young plant, so I here give a description of it.

*Herba*, caulibus circiter 2 m.; *foliis* oblongis 30 cm. latis, juvenibus brunneo-maculatis, nervis horizontalibus 2 cm. distantibus, costa et petiolo crassissimis; *spica* circiter 1 m. longo deflexo rachide superne hirto 2 cm. crasso; *bracteis* oblongo-linearibus 10 cm. longis 4 cm. latis; *floribus* masculis; *calyce* lineari dentibus ovatis 3 parvis, 2 cm. longo; *corolla* lineari-cymbiformi dentibus 2 acutis, medio crasso marginibus tenuibus 4 cm. longa; *staminibus* filamentis linearibus 2 cm. longis; antheris linearibus aequilongis; *stylo* gracili 4 cm. longo; *baccis* 6 in uno serie, 6 cm. longis, 2 cm. crassis (in siccis), pedicellis hirtis 7 mm. longis.

Siberut, 14629.

**Cuculigo latifolia** *Dryand.* Siberut, 14578, 10500.

BURMANNIACEAE.

**Gymnosiphon aphyllum** *Bl.* Siberut, 14596. Flowers white and violet.

COMMELINACEAE.

**Pollia thyrsiflora** *Endl.* Sipora, 14690.

**Aneilema lineolatum** *Kth.* Sipora, 14814. Flowers white, sepals and fruit crimson brown.

**Forrestia marginata** *Hassk.* Siberut, 14497. Fruits crimson.

**Floscopa scandens** *Lour.* Sipora, 15811. Flowers very pale violet.

FLAGELLARIACEAE.

**Flagellaria indica** *Linn.* Siberut, 14571. Sipora, 14572.

**Susum malayanum** *Hook. fil.* Siberut, 14576.

PALMACEAE.

**Areca pumila** *Bl.* Siberut, 11440.

**Pinangia noxa** *Bl.* Siberut, 11437.

I have seen no specimen of the Javanese plant, but this specimen fits Blume's figure in Rumphia.

**Licuala spinosa** *Thunb.* Siberut, 14614.

In this specimen some fruits have two or occasionally 3 carpels fully developed into drupes.

**Calamus Diepenhorstii** *Miq.* Siberut, 11446. Fruit pale rusty.

**Daemonorops dracunculus** *Ridl.* n. sp.; affinis *D. dracone* Bl. sed differt in foliolis remotis et spathis spinis griseis in seriebus dense armatis.

*Palma* scandens, *foliis* ultra 1 m. longis, rachide 1 cm. crasso inferne unguibus atro-acuminatis 4–6 congestis basibus latis armato foliolis dissitis alternis, infra 4.5 cm. remotis linearibus breviter acuminatis basibus angustatis, costa elevata, nervis circiter 8, setis brevibus atris remotis in marginibus et costa superne, longioribus et pluribus ad apices, 37 cm. longis, 4 cm. latis; flagello terminali valido 1.04 m.; *spadice* (fructibus juvenibus) 24 cm. longis; *pedunculo* 7 cm. longo spinis atro-griseis planis pugioniformibus in seriebus dense armato; *spatha inferiore* 15 cm. longa, 2.2 cm. lata, oblongo-lanceolata dense spinis atro-griseis 1 cm. longis planis pugioniformibus 5–7 in seriebus armata; *spatha secunda* coriacea 15 cm. longa, 4.5 cm. lata, serie spinarum in medio versus basin, costis transversis pluribus in parte superiore; *spatha terminali* ovata acuta inermi 4.5 cm. longa, 2 cm. lata; *spadice* condensata furfuracea, basi 3 cm. longa nuda, quadrangulata,

ramis 5 cm. longis; *spatheis* brevibus patelliformibus; *calycis* lobis brevibus 3 rotundatis; *petalis* lanceolatis acuminatis coriaceis striatis 2 mm. longis; *drupis* juvenibus ovoideis apicibus conoideis, squamis resiniferis rhomboideis latioribus quam longioribus; *stylis* brevibus cornutis recurvis.

Siberut, 10585.

PANDANACEAE.

**Pandanus spinosissimus** *Ridl.* n. sp.; species *P. stenophyllo* Kurz affinis, syncarpiis minoribus pluribus spicatis differt.

*Frutex*, *foliis* rigidis lineari-acuminatis laevibus, costa nulla, spinis pallidis erectis copiosis et densis ad apices, 1 m. longis, 2 cm. latis; *floribus* masculis ignotis; *inflorescentia feminea* 10 cm. longa in pedunculo, 7 cm. longo; *capitulis* globosis 5 sessilibus in rachide flexuoso, 2 cm. longis; *bracteis* lanceolatis acuminatis 10–12 cm. longis, 1 cm. latis ad bases, marginibus spinosis; *drupis* in flore 5 mm. longis, parte libero brevi lato rotundato; *stylo* lato corneo, basi lato oblongo; *stigmatibus* divaricantibus acutis; in *fructu* capitulis 3 cm. longo, 2 cm. lato; *drupis* 1 cm. longis, 5 mm. latis.

Siberut, 14086. Flowers green.

**Freycenetia sumatrana** *Hemsl.* Siberut, 14565.

**Freycenetia Klossii** *Ridl.* n. sp.; *F. angustissimae* Ridl. planta papuana affinis foliis multo latioribus et longioribus et rigidis, et *F. albanica* Merrill, Philippinarum drupis ejus autem 3 vel pluribus stigmatibus diversa.

*Frutex* scandens, *caule* 8 mm. in diametro; *foliis* rigidis linearibus acuminatis, costa prominente spinis pallidis erectis ad bases et apices, 22 cm. longis, 8 mm. latis, vaginis marginibus latis papyraceis pallide brunneis 2 mm. latis; *spicis masculis* bracteisque ignotis; *spadice feminea* 1 cm. longa, 4 mm. crassa tandem 2 cm. longa, 6 mm. lata, pedunculo 1 cm. longo costis scabridis 5; *drupis* conicis apicibus liberis angulatis; *stigmatibus* 1 vel 2 raro 3.

Siberut, 14547. Small Pandan.

AROIDEAE.

**Alocasia longiloba** *Miq.* Siberut, 11438. Flowers yellowish-white; spike buff, base white, stem mottled.

This is exactly the large form described by N. E. Brown as *Alocasia eminens*.

**Homalomena lanceolata** *Miq.* Sipora, 14777.

A form with few primary nerves. Some of the specimens, evidently from cracks in the rocks in streams, are only 7 cm. long, with leaves 2 cm. long.

**H. cordata** *Schott.* Siberut, 12297. Flowers whitish.

**Homalomena multivenosa** *Ridl.* n. sp.; species *H. batoensi* Engler affinis sed nervis foliorum 12-paribus approximatis.

*Herba*, *rhizoma* validulum; *foliis* elliptico-lanceolatis longe acuminatis basibus longe attenuatis, nervis subtus prominentibus,

gracilibus approximatis parallelis ascendentibus 12-paribus, costa basi applanata superne attenuata 15–17 cm. longis, 6 cm. latis, petiolis 13.5 cm. longis gracilibus 4 cm. vaginitis; *pedunculis* gracilibus 4 cm. longis; *spatha* oblonga, 2.2 cm. longa, 4 mm. crassa brevissime rostrata; *spadice* gracili ferme aequilonga, parte mascula 7 mm. parte feminea 1 cm. longa; *pistillis* ovoideo-globosis; *stylo* brevi projecto; *stigmate* rotundato; *floribus sterilibus* nullis.
Siberut, 11441.

**Aglaonema Schottianum** *Miq.* Sipora, 14678.

**Anadendrum montanum** *Schott.* var. **ovalifolium** *Ridl.* n. var.; foliis basibus latis elliptico-ovatis, spathis per parvis 1 cm. longis. Sipora, 14694.

**Raphidophora batoensis** *Engl.* Siberut, 14470. Sipora, 14713. Flowers black on pale buff.
The spathe was not described by Engler; it is boat-shaped, 3 cm. long, coriaceous with a cusp 1.5 cm. long.

**Scindapsus longipetiolata** *Ridl.* n. sp.; species *S. perakensi* Hook. f. differt petiolis folio multo longioribus elongatis.
*Epiphyta*, *rhizomate* 7 mm. in diametro; *foliis* 5 cm. distantibus subfalcatis lanceolatis acuminatis basibus attenuatis obtusis costa prominente, nervis densissimis copiosis 27 cm. longis, 6 cm. latis, petiolis 12–15 cm. longis, alatis pro 12–15.5 cm. longitudinis; *spadice* cylindrico obtuso 6 cm. longo, 7 mm. crasso, *pedunculo* 7 cm. longo; *spatha* non visa; *ovariis* oblongis obscure quadrangulatis 2 mm. longis saepe processubus lateralibus 1 vel 2; *stigmate* lineari brevi.
Sipora, 14708. Flowers brownish-grey.

### Cyperaceae.

**Kyllinga monocephala** *Rottb.* Siberut, 13091. Flowers white.

**Cyperus pilosus** *Vahl.* Siberut, 10573.

**C. digitatus** *Roxb.* Siberut, 13088.

**Fimbristylis diphylla** *Vahl.* Siberut, 10571. Flowers white.

**F. miliacea** *Vahl.* Siberut, 10572. Sipora, 14790.

**Hypolytrum latifolium** *Rich.* Siberut, 12285.

**Mapania humilis** *Naves & Villers.* Siberut, 11442. Sipora, 14815.

**Scirpodendron costatum** *Kurz.* Siberut, 14082. Sipora, 14783.

### Gramineae.

**Leptaspis urceolata** *R. Br.* Sipora, 14712.

**Ischaemum muticum** *Linn.* Siberut, 14460. Flowers white, yellowish.

**I. timorense** *Kunth.* Siberut, 14486.

**Imperata exaltata** *Brngn.* Siberut, 13089.

**Coelorrhachis glandulosa** *Brngn.* Sipora, 14725.

**Pollinia sumatrensis** *Ridl.* n. sp.; species *P. montanae* Nees et *P. gratae* Hack. affinis differt glumis acuminatis.

*Gramen*, culmis ramosis ultra 60 cm. altis; *foliis* herbaceis lanceolatis acuminatis, basibus attenuatis glabris vel sparse hirtis, 12 cm. longis, 1 cm. latis, ligula brevi, pilis longis albis, vaginis albo-pilosis in margine apicali; *pedunculis* gracilibus 15 cm. longis vel ultra; *panicula* racemorum 3 ramosorum 7 cm. longorum, articulationibus angulatis marginibus pilis rigidis erectis 1 mm. longis; *spiculis* singulis, gluma I angusta lanceolata acuminata marginibus apicique hirtis carinata, gluma II ferme aequilonga lanceolata acuminata apice sparse hirta, aristata; gluma III angusta lanceolata tenuiore, gluma IV ad aristam capillari 2.2 cm. longam reducta, palea brevi oblonga; *caryopsi* lineari laevi brunnea.

Sipora, 14788. Flowers orange.

**Setaria rubiginosa** *Miq.* Siberut, 14483. Flowers dull green.

**Echinochloa colona** *Link.* Siberut, 14485. Sipora, 14789. Flowers deep crimson.

**Paspalum auriculatum** *Presl.* Siberut, 14626.

**Sacciolepis interrupta** *Stapf* :—*Panicum interruptum* Willd. Siberut, 14626.

**Cyrtococcum accrescens** *Stapf.* Siberut, 14482.

**Phragmites communis** *Linn.* Siberut, 14617.

### Gnetaceae.

**Gnetum oxycarpum** *Ridl.* n. sp.; species affinis *G. campestri* Gamble sed major, drupis ellipsoideis acuminatis.

*Frutex* scandens, *caule* ultra 1 cm. crasso, ramis gracilibus articulatis; *foliis* coriaceis (siccis pallide brunneis) ellipticis acutis cuspidato-acuminatis basibus breviter cuneatis, nervis 7-paribus arcuantibus indistinctis, nervulis paucis, 6 cm. longis, 3 cm. latis (cuspide ultra 1 cm. longo), petiolis 4 mm. longis; *floribus* masculis ignotis; *spica feminea* fructescente in ligno vetusto 6 cm. longa in pedunculo lignoso 1 cm. longo, verticillis 6-florum, 2 mm. dissitis, *cupulis* marginibus valde undulatis, *ovariis* conicis acuminatis acutis, cupulis (perianthiis) vix profundis hirtis in marginibus, intus glabris; *drupis* ellipsoideis acuminatis sessilibus 3 cm. longis, 1 cm. latis.

Siberut, 14590. Creeper.

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## XI.—VASEY GRASS IN AFRICA. C. E. Hubbard.

Specimens of a useful fodder grass, "Vasey Grass" (*Paspalum Larranagai* Arech.), were recently received from Professor C. E. Moss, who collected them in Milner Park, Johannesburg, Transvaal. As the grass is not well known in South Africa, and as its correct

name has been much in doubt, the following brief account of the species may be of value.

*Paspalum Larranagai* Arech. is a native of South America, being found in the Argentine, Uruguay, Paraguay and Brazil. It was introduced, it is believed, into the United States about 1882, and is now wide-spread on the moist lands from South Carolina to Alabama and Texas and occurs also in California. It was probably introduced into South Africa under the name of *Paspalum dilatatum* Poir., or *P. virgatum* Linn.

This grass was first described by Vasey in 1886 as *P. virgatum* var. *pubiflorum* from North American specimens*. In 1899 Scribner raised it to specific rank giving it the name *P. Vaseyanum*† It had, however, been described five years previously by Arechavaleta as *P. Larranagai* from Uruguayan material‡. Though this is its correct name, it is obvious that it has been used as a fodder grass under the name of *P. virgatum* not only in North America, but apparently also in parts of South Africa.

With regard to South Africa, no specimens of the true *P. virgatum* Linn. from that country are to be found in the Kew Herbarium, and it appears probable that the grass referred to by Leppan and Bosman in " Field Crops in South Africa (1923) ", p. 295, and by Mundy in Rhodesian Agricultural Journal, xix (1922), p. 142, as *P. virgatum* (" Upright Paspalum "), is in reality *Paspalum Larranagai*.

That the Rhodesian plant is *P. Larranagai* is fairly certain on account of the fact that a specimen cultivated at the Department of Agriculture's Experimental Station, Salisbury, in 1919 (Govt. Herb. no. 2601), and now at Kew proves to be that species, and the same is true with regard to specimens exhibited from Rhodesia at the British Empire Exhibition at Wembley.

The following particulars of the species have been compiled, as a correct description of this grass may not be readily accessible in South Africa.

*Paspalum Larranagai* Arech.—A tufted perennial grass. *Culms* erect, 0.9–1.8 m. or more high, stout, striate, glabrous. Lowest *leaf-sheaths* hispid with stiff ascending or spreading tubercular-based hairs or almost glabrous, upper glabrous or nearly so. *Ligules* membranous, up to 8 mm. long (in the African specimens). *Blades* linear-lanceolate, rounded at the base and tapering gradually to a fine point, up to 5 dm. long and 18 mm. wide, hirsute with long white hairs just above the ligule, otherwise glabrous. *Inflorescence* up to 40 cm. long, composed of 10–25 erect or slightly spreading *racemes*, lowest from 8–12 cm. long; rhachis slightly less than 1 mm. wide, generally hairy at the base, like the pedicels finely scabrid on the margins. *Spikelets* 4-seriate, paired, imbricate, ovate, 2–2.5 mm. long and about 1.4 mm. wide, acute, hairy. *Lower*

* Vasey in Bull. Torrey Club, 13.167 (1886).
† Scribner in U.S. Dept. Agric. Bull. Agrost. 17 : 32, fig. 328 (1899).
‡ Arechavaleta in Ann. Mus. Nac. Montevideo 1 : 60, with fig. (1894).

*glume* 0. *Upper glume* the same shape and size as spikelet, membranous, convex, 3-nerved, pilose on the margins with long hairs, with shorter ones on the surface. *Lower valve* similar in size, shape, and hairiness to upper glume, 3-nerved. *Upper valve* widely ovate, glabrous, yellowish white.

In the United States this grass is known as "Vasey grass," and it seems probable that it will become of increasing agricultural value in North America. Piper (*) remarks:—"When abundant it is much cut for hay, the quality of the hay being considered excellent. It continues to grow all through the winter except in very cold weather and therefore affords late pasturage. It flourishes best on wet heavy land, but succeeds well on moist sandy land and also withstands very severe drought. In pastures continuous heavy manuring kills the grass.

"The seeds are light and 10–20 pounds per acre should give a satisfactory stand, this depending on the quality of the seed. These are produced in abundance, but as the grass continues to produce flowering culms during a long season, every stage from young flowers to ripe seeds is found on the plant. The best practice is to cut the first crop for hay and the second or last for seed. It has an advantage over *P. dilatatum* in rarely being attacked by Ergot."

The true *Paspalum dilatatum* Poir., to which this species is allied, and with which it has been confused, differs in having spikelets 3–3.5 mm. long and usually less than 8 racemes in the inflorescence. *Paspalum virgatum* Linn. differs from *P. Larranagai* in having glabrous or slightly pubescent spikelets.

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## XII.—STANDARD-SPECIES. T. A. Sprague.

It is generally agreed that certainty in the application of names is of paramount importance in nomenclature (Journ. Bot. 1924, 79). The use of the same generic name, by different botanists, for different natural groups possessing no common element, leads inevitably to confusion and waste of time. Whenever, as frequently happens, a genus is divided into two or more genera, the question at once arises as to which of these should continue to bear the original generic name. Obviously the generic name should not be transferred to a genus containing none of the original species. If the genus, when first effectively published, comprised only a single species, the generic name should naturally remain attached—whether as an accepted name or as a synonym—to the segregate genus including that species. If the genus originally included two or more species, however, difficulties may arise, inasmuch as different authors may retain the name for different elements of the original genus. The only way in which permanent

* U.S. Dept. of Agric. Farmers Bull. 1433: 22–26, fig. 21 (1925).

uniformity in the application of such generic names can be attained is by means of *agreement* in each case on a particular species, to which the generic name is permanently attached. This species will then serve as a fixed point or standard, which is permanently included within the generic limits, however narrowly or widely they may be drawn. Hence it may be termed the "standard-species," and the method of applying names with reference to such standards may be called the "standard-method."

Two different methods of applying generic names are widely adopted, namely, the "residue-method" and the "type-method." Under the residue-method the generic name is applied to the residue of the genus after subtraction of the successive segregates. It is unsatisfactory in many cases because: (1) it may lead to the generic name being retained by the least characteristic element of the original genus; (2) it may even lead to the generic name becoming applied to a genus containing none of the original species; (3) it may not permanently determine the application of the generic name, as the residue itself—if comprising more than a single species—may subsequently be subjected to still further segregation.

Under the type-method the generic name is applied so as to include the so-called "type-species," namely, the species which the original author of the genus had chiefly in mind when he established the genus. This method is frequently unsatisfactory because: (1) there is often no reason to suppose that the original author of a given genus regarded *any* species as a nucleus or as being more representative than the others; (2) opinions differ in many cases as to which is to be regarded as the type-species; (3) the adoption of the type-method leads in numerous cases to serious disturbance in generic nomenclature, unless *exceptions* are admitted.

It should be clear that neither the residue-method nor the type-method is wholly satisfactory. The standard-method combines the advantages of both, without their defects. It permanently fixes the application of generic names by the acceptance of "standard-species," but leaves the selection of the standard-species to be decided on its own merits in each genus, so as to avoid serious changes in nomenclature. It embodies the principle of the type-method, as accepted by the recent Imperial Botanical Conference (Proceedings, 306, 384; 1925), but provides for exceptions.

The preparation of a list of "standard-species" for *all* generic names would be an immense task, and its accomplishment would necessarily be a gradual process. As it is mainly in regard to the application of *Linnean* generic names, however, that differences of opinion arise, it would be sufficient, in the first place, to supply a list of standard-species of the Linnean genera. Such a list should be accompanied by reasons for the selection in each case, otherwise it would fail to command attention. An interval of at least one year after publication should elapse before the list is submitted to

an International Congress for consideration. This would afford adequate opportunities for discussion of disputed cases, if any. A list of suggested standard-species for the Linnean genera of Tetradynamia (*Cruciferae*, with the genus *Cleome*) has been published by Miss M. L. Green in *Kew Bull.* 1925, 49–58, as a sample of what is proposed. Standard-species should also be supplied for all the "nomina generica conservanda" and for any proposed new ones.

The following Rules are suggested as a guide to the selection of standard-species.

*Rule* 1.—The standard-species should be one which was included in the genus when the latter was first effectively published.—Examples 1–6.

*Rule* 2.—If there is clear evidence that the original author regarded a particular species as a nucleus or type of his genus, it is accepted as the standard-species.—Examples 1–3.

*Rule* 3.—If there is clear evidence that the original author regarded a particular subdivision of his genus as a nucleus or as typical, the standard-species is selected from that subdivision.—Example 4.

*Rule* 4.—If there is no such typical species or subdivision the standard-species is selected from among the original species in such a way as to conserve the generic name, if possible, in its generally current application.—Example 5.

*Rule* 5.—Nevertheless, if grave disturbance in nomenclature would be caused by adherence to the foregoing Rules, exceptions may be made. Each case should be considered on its own merits.—Examples 7 (exception to Rule 1), 6 (exception to Rule 2).

*Example* 1.—The genus *Gesneria* L. originally included only two species, *G. humilis* L. and *G. tomentosa* L. (Sp. Pl. 612). These were removed by Martius in 1829 to his new genera *Conradia* and *Rhytidophyllum* respectively. Nothing of the original genus *Gesneria* being left, Martius (Nov. Gen. iii. 27), misapplied the name (in the form *Gesnera*), to a third genus, which had been erroneously included in *Gesneria* L. This misapplication has now been rectified by general consent. As the generic name *Gesnera* was originally proposed by Plumier for the species subsequently named *G. humilis* by Linné, this is now accepted as the standard-species of *Gesneria* (*vide* Fritsch in Engl. & Prantl, Nat. Pflanzenf. iv, 3b, 183; Urb. Symb. Antill. ii. 377); and *Gesnera* Mart., non L., becomes *Rechsteineria* Regel (*vide* Fritsch in Engl. Jahrb. 1. 434).

*Example* 2.—The genus *Eranthemum* L. originally included only one species, *E. capense* L. (Sp. Pl. 9), which was based on a plant collected in Ceylon by Hermann, and described by Linné under the name *Eranthemum* in Fl. Zeylan. 6, n. 15 (1747), and Amoen. Acad. i. 384. In Sp. Pl. 9 Linné unfortunately confused this with a Cape plant, *Ephemerum Lychnidis flore Africanum* Herm. Parad. 153, and called the species *E. capense* in consequence. Hermann's

Ceylon plant is conspecific with *Justicia montana* Roxb. Cor. Pl. 41, t. 176, which is the type-species of *Daedalacanthus* T. Anders. Hence the latter genus is now known as *Eranthemum* L., and the genus which has generally but erroneously passed under the name *Eranthemum* is called *Pseuderanthemum* Radlk. (*vide* Engl. & Prantl, Nat. Pflanzenf. iv. 3b, 311, 330; Stapf in Bot. Mag. t. 8239; Gamble, Fl. Madras, 1023, 1064).

*Example* 3.—The genus *Vella* was based by Linné (Hort. Cliff. 329), on *Nasturtium silvestre valentinum* Clus. In 1753 he named this *Vella annua*, and added a second species, *V. Pseudocytisus* (Sp. Pl. 641). A. P. De Candolle separated *V. annua* in 1821 as the type of a new genus *Carrichtera*, retaining the name *Vella* for *V. Pseudocytisus*. But as *V. annua* was the nucleus of *Vella* L., it should retain that generic name, and the genus of which *V. Pseudocytisus* is representative becomes *Pseudocytisus* Kuntze (*vide* M. L. Green in *Kew Bull.* 1925, 51).

*Example* 4.—The genus *Nymphaea* L. (Sp. Pl. 510; Gen. Pl. ed. 5, 227) included the white water-lilies, the yellow water-lilies and the nelumbo, which are now regarded as belonging to three distinct genera. Adanson separated *Nelumbo* generically in 1763, and Salisbury in 1805 segregated the white water-lilies as *Castalia*, retaining the name *Nymphaea* for the yellow water-lilies. But as Conard (Rhodora, 1916, xviii. 161–164) has pointed out, Linné's generic description of *Nymphaea* was evidently drawn up primarily from the white water-lilies, as witness the phrase "petala germinis lateri insidentia." The standard-species of *Nymphaea* should accordingly be selected from the white water-lilies, of which there were two in Sp. Pl. ed. 1, namely *N. alba* and *N. Lotus*. The former is obviously indicated, as it was much better known to Linné.

*Example* 5.—The genus *Trifolium* L. (1753) included forty species. Linné divided it into five sections characterised as follows: "Meliloti leguminibus nudis polyspermis" (spp. 1–8); "Lotoidea leguminibus tectis polyspermis" (spp. 9–14); "Lagopoda calycibus villosis" (spp. 15–31); "Vesicaria calycibus inflatis ventricosis" (spp. 32–35); and "Lupulina vexillis corollae inflexis" (spp. 36–40). According to Britton (Britton and Brown, Ill. Fl. ed. 2, ii. 353), *T. pratense* is the type-species, but there seems to be no reason to suppose that Linné regarded any one of the species as more typical than the rest. *T. pratense* is, however, a suitable standard-species, as it is very well known, belongs to Linné's largest section, and is still retained in the genus.

*Example* 6.—The type-species of *Erysimum* [Tourn. ex] Linn. is undoubtedly *E. officinale*, which is the only species common to *Erysimum* Tourn. and *Erysimum* Linn. As the acceptance of *E. officinale* as the standard-species would involve the transference of the name *Erysimum* to the genus commonly known as *Sisymbrium*, it is suggested that *E. cheiranthoides* (one of the original species in Sp. Pl. ed. 1), should be substituted for *E. officinale* as

the standard-species of *Erysimum* (*vide* M. L. Green in *Kew Bull.* 1925, 55).

*Example* 7.—The genus *Ixia* L. (Sp. Pl. 36) originally included only two species, *I. africana*, which is the type-species of *Aristea* Ait. (1789), and *I. chinensis*, which is assigned to *Belamcanda* Adans. (1763), emend., a "nomen conservandum" under the International Rules of Nomenclature. As the name *Ixia* was originally based by Linné (Cor. Gen. 1; *vide* Richter, Codex, 51), on *I. africana*, the name *Ixia* would in the normal course of events be retained for that species, thus replacing *Aristea*, and the horticulturally important genus commonly known as *Ixia* would have to be re-named (*vide* Hitchcock in Amer. Journ. Bot. 1923, x. 512). In order to retain the generic names *Aristea* and *Ixia* in their present application, it is suggested that *I. polystachya* L. Sp. Pl. ed. 2, 51 should be adopted as the standard-species of *Ixia*.

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## XIII.—ON THE FLORA OF THE NEARER EAST.

W. B. Turrill.

**Pinus brutia** *Ten.* Flor. Nap. i. lxxii. (1811) and v. t. 200 (1835/6).

It is generally acknowledged that Tenore figured and described a somewhat abnormal specimen with numerous cones. Allowing this to be an individual character, the following characters have been used for distinguishing two species as *P. halepensis* and *P. brutia*.

| *P. halepensis.* | *P. brutia.* |
|---|---|
| Twigs long and thin, 2–3 mm. in diameter, clear gray. | Twigs thicker, 4–5 mm., yellowish-red. |
| Winter buds oval, 5 mm. long. | Winter buds oblong, 1–2 cm. long. |
| Leaves up to 9 cm. long, clear green, often gray-green. | Leaves 12–23 cm. long, darker green. |
| Young cones 1–2, rarely 3, on a peduncle of equal or greater length. | Young cones 3–4 (up to 6), longer than their peduncle. |
| Mature cones on a curved peduncle up to 2 cm. long, pendulous. | Mature cones nearly sessile, horizontal or ascending. |
| Apophysis up to 15 mm. broad with a clear transverse keel. | Apophysis up to 2 cm. broad with an inconspicuous transverse keel but with radiating lines or furrows. |
| Umbo clearly raised, medium or small. | Umbo flat and often not set at all above the apophysis–surface, larger. |

I find that the above combinations of characters are not constant. To take some actual specimens preserved at Kew and the Natural History Museum:

1. *Huter, Porta, Rigo* ex itin. hispan. 1879, no. 889, from Sierra Cabo de Gata, Granada. Shoots rather short, gray, in the leaf-bearing parts 2 mm. in diameter, leaves 4.5–5.5 cm. long, mature cone pendulous, with a curved peduncle, apophyses (of

central scales) 15 mm. broad, transverse keel represented by a scarcely raised line. Umbo flat, 5 mm. broad.

2. *E. Bourgeau* Pl. d'Espagne 1850, no. 884, from "Forêt à Riopar". Yellowish-gray shoots, in the leaf-bearing parts varying from 2 to 6 mm. in diameter, leaves 3 to 9 cm. in length in different parts of the specimen, mature cone pendulous, with a curved peduncle, apophyses (of central scales) 11 mm. broad, transverse keel represented by a well raised line. Umbo clearly raised, 4-4.5 mm. broad.

3. *Heldreich* Herb. Graecum Normale no. 1300, from Attica, foot of Mt. Pentelicon. Branches gray, slender, in the leaf-bearing parts 1–3 mm. in diameter, leaves 5.5-8.5 cm. long, mature cone with apophyses of central scales 12–13 mm. broad, transverse keel scarcely apparent. Umbo nearly flat, 5 mm. broad with well developed radiations.

4. *Kett* from Gallipoli Peninsula. Branches yellowish-red at first soon turning gray, leaf-bearing portions from 1 cm. to 2 mm. in diameter, leaves clear gray-green, from 7 to 13.5 cm. long, mature cone slightly ascending to the branch bearing it, apophyses of central scales 15 mm. broad, transverse keel scarcely apparent. Umbo nearly flat, 4 to 6 mm. broad with well developed radiations.

5. *Turrill* 1059, Aug. 1925, specimen from Mt. Sergi, near Dubrovnik (Ragusa), Dalmatia. Leaves slender, 11 to 14 cm. long, scarcely 1 mm. in diameter, pale green in colour. Young branches reddish, turning gray later. Nearly mature cone almost at right angles to the branch bearing it, with peduncle 0.5 cm. long. Apophyses of central scales 1.8–1.9 cm. broad, transverse keel very weakly developed. Umbo flat with moderately developed radiations.

6. *Turrill* 1023, Aug. 1925, specimen from the Lapad Peninsula, near Gruž (Gravosa), Dalmatia. Leaves slender, pale green, 6 to 8.5 cm. long, scarcely 1 mm. in diameter. Young branches reddish, becoming gray later. Very young cones with peduncles 2.2 cm. long, sharply pendulous. As the cones pass to maturity the umbos become gradually flatter, but in some of the young stages they are bulging and very pronounced. The position taken by the cone varies with its age, size and position on the branch and the position of the branch itself. I have seen cones at all angles on one and the same tree.

7. Tenore's specimen of *Pinus brutia* at British Museum (Nat. Hist.). Leaves about 13 cm. long, moderately stiff, moderately dark in colour. Young detached cone, ovoid, nearly sessile, middle scales 1.2 cm. broad, 1 cm. long, flat umbo.

8. Miller's type of *Pinus halepensis* at the British Museum (Nat. Hist.). Leaves 5.5 cm. long, dark. Cones ellipsoid, middle scales 1.2 cm. broad, 8 mm. long, umbo small, 2–4 mm. broad, 2 mm. long, ridge of apophysis moderately developed.

It is obvious that many specimens show mixtures of the supposed specific characters. The recorded distributions of the two supposed species overlap, so that no geographical isolation can be assumed, nor does it appear that there is any natural ecological separation. It may be noted, however, that according to forestry authorities, trees with longer darker foliage, referred to *P. brutia*, do better on the Karst, for purposes of reforestation, than trees of *P. halepensis* with shorter paler foliage. After a careful examination of all available material and the examination in the field of hundreds of wild trees I am forced to the conclusion that *P. brutia* represents only a certain combination of characters, some of which depend on age, others on ecological conditions and some, perhaps, on genetical factors, that these characters are found in different combinations in other individuals, and that all such individuals together with those referable to *P. brutia* are to be included in the one species, *P. halepensis*.

**Fagus orientalis** *Lipsky*. Fl. Cauc. impr. Colch. novitates in Acta Hort. Petrop. xiv, 300 (1897).

This species is distinguished from the common European *F. silvatica* by the greater number of nerves (usually 9 to 12 each side of the midrib) in the leaves, the perianths of the male flowers broadly and shortly campanulate, with shorter lobes, the laciniae of the fruit involucre dissimilar, larger, and some frequently green and even foliaceous. Palibine has since segregated from *F. orientalis* specimens which he considers to represent a new species —*F. Hohenackerana* Palib. in Bull. Herb. Boiss. Ser. II. viii. 378 (1908), from the Eastern Caucasus and Persia. The material available at Kew is insufficient for me to test the value of this segregation.

The distribution of *F. orientalis* towards the east is thus doubtful but it is interesting to note that it stretches a very considerable distance around the Black Sea. From the Caucasus it stretches right across northern Asia Minor to Mt. Olympus in Bithynia and Mt. Ida in the Troad. It probably has a wide extension in the interior for I have seen specimens from Phrygia and the Amanus range. It has been recorded from eastern Bulgaria and from the Crimea [E. Wulff and T. Zyrina in Oesterr. Bot. Zeitschr. lxxiii. 276 (1924)]. Its distribution in the former country is of considerable interest, as it appears to be limited to the eastern side and to the lower and hill altitudinal zones. This contrasts with the wide distribution of *F. silvatica* in Bulgaria, and with its limitation to the montane and high mountain altitudinal zones. N. Stojanoff and B. Stefanoff recorded *F. orientalis* from shady ravines in the Kamčia in E. Bulgaria (Oesterr. Bot. Zeitschr. lxxii. 85, 1923), and a map of its distribution in the Strandja district is given by Stefanoff in a later publication (XX. Godišnike na Sof. Univ. 1924). It is therefore of interest to record its distribution still farther north on the western coast of the Black Sea. Last year I received from

Mr. B. Gilliat-Smith, then British Vice-Consul at Varna, specimens of a beech. In a letter to me he says: "Yesterday I went an excursion to Aladja Monastery, north-east of Varna, along the coast. In the forest south of the monastery I found a beech bush growing, and I'm sending you some samples in the next batch. This is the first wild beech I've ever seen growing round Varna. I enquired of the monk who lives at the monastery, an intelligent man whom I've known for the last 15 years, by the name of Dedo Todor, *i.e.*, Father Todor (Theodorus). He told me that where we were, on the southern slopes of the hills, facing the sea, there was very little beech, but to the north, about a quarter-of-an-hour's walk from the Monastery, at a place facing north, and known as 'Yaltalar,' there is a whole forest exclusively of beech."

The specimens sent by Gilliat-Smith proved to be typical *F. orientalis*, and it is now desirable to obtain specimens of the beech recorded from the Dobruja. This has always been called *F. silvatica*, but since it is a plant of low altitudes it may well be *F. orientalis*.

**Verbascum phoeniceum** *L.* var. **flavidum** *Boiss.* Fl. Or. iv. 346 (1879).

The specimens quoted by Boissier are: Macedonia (Friv.), Erzerum (Calv.), Armenia ad Ortus (Huet). Of these I have only seen a scrap of the last preserved in Herb. Kew. Boissier founds his variety solely on the colour of the corolla "lutea aut lutescenti-virens." In the Oester. Bot. Zeitschr. xli. 57 (1891) Freyn and Bornmüller raise the var. *flavidum* to specific rank and give a short description in German, based, probably on the specimen quoted by them from E. Anatolia: in apricis montis Kara-Dagh ad septentrionem urbis Amasia, alt. 600–800 m.s.m. ubi die 30 majo 1889 leg. Bornmüller (Exsicc. Nr. 592). Their *V. flavidum* is contrasted with *V. phoeniceum* and *V. xanthophoeniceum*: the stem is leafy and not shaft-like, with the leaves decreasing in size upwards, the basal leaves are shortly stalked (not sessile), the wool of the filaments is purple (not violet), the calyx 3.5 mm. (not 2 mm.) long, the bracts long-oval, long-acuminate, the capsule is double as long as the calyx, the leaves are papillose on the underside and the flowers dull-yellow. I am not certain that the plants placed by Boissier under his variety *flavidum* are to be placed in the same variety or species as Bornmüller's plant, but I now refer the plants mentioned under *V. Blattaria* in Kew Bull. 1922, 296, to *V. phoeniceum* var. *flavidum* Boiss. Velenovsky in Flora Bulgarica 416 (1891), describes a new variety of *V. phoeniceum* as var. *amplexicaule*. This is a tall closely leafy luxuriant plant, with the lower leaves deeply cordate or cordate-auricled, the cauline leaves passing gradually into the bracts, the pedicels acutely spreading, the lower equalling the bracts, the upper double their length. In the Suppl. 210 (1898) he adds that the flowers are violet and the plant is essentially one of montane localities.

Mr. Gilliat-Smith collected seeds of a *Verbascum* near Varna in Eastern Bulgaria. About a dozen plants grown from these have flowered this year (1925) in the Experimental Ground attached to the Herbarium at Kew. These plants are very uniform and are obviously different from typical *V. phoeniceum* in their luxuriant growth, much branched densely leafy stems and yellow flowers, although the structure of the anthers is intermediate between that found in typical *V. phoeniceum* and typical *V. Blattaria*. Since the habit and the majority of characters agree with those of the latter species I describe it as a variety of this. A full description drawn up from living specimens is given below. The essential difference between *V. Blattaria* and *V. phoeniceum* is supposed to be that the former has three reniform and two adnate-decurrent anthers, and the latter all the anthers subequal and reniform. Other associated differences are the more luxuriant habit, leafy stems, amplexicaul cauline leaves, broader more foliaceous bracts, and larger calyces of *V. Blattaria*, contrasting with the more meagre vegetative development, nearly leafless stems or at most stems with a few not amplexicaul leaves, linear bracts, and smaller calyces of *V. phoeniceum*. All of these characters show a certain range of variation and the colour of the corolla is certainly not of specific value. Regarding the differences in the anthers, I have examined living and dried material showing intermediate conditions, such as are also found in my var. *grandiflorum* of the species *V. Blattaria*, published in the Botanical Magazine t. 8863, where, however, the anthers are not accurately shown. The degree to which the two anthers of the longer stamens are adnate-decurrent varies very considerably. Sometimes the adnation is complete for the whole length of the anther, often the anther is almost reniform, but shows a slight tendency to become adnate-decurrent on one side.

**Verbascum Blattaria** *L.* var. **luxurians** *Turrill.* Plants up to 1.74 m. in height. The stems stiffly erect, and much branched all the way up from the base to the inflorescence. The greatest diameter of the stem at the base is 14 mm. Running longitudinally down the stem are 5 obtuse-angled ridges. In the early rosette stage the leaves are dark green, oblong-spathulate or broadly oblanceolate in outline and narrowing to a short petiole about 5 mm. long. The first leaves are only slightly crenate at the margins, the later ones more so. The rosette is about 15 cm. in diameter. In the mature plant the erect flowering stem is densely covered with foliage leaves, which diminish in size upwards. The lower leaves are oblong, the middle ones oblong-lanceolate to broadly lanceolate, the upper ones ovate-lanceolate. They pass very gradually into the bracts—indeed, the uppermost leaves are of the same size, shape and structure as the lowest bracts. The lowest leaves are narrowed to the base and are practically sessile, while the rest have a markedly cordate base which clasps the stem

(amplexicaul). The upper surfaces of all the leaves are dark green and very glossy, the lower surfaces paler green and less glossy. The leaves stand out nearly at right angles to the stem, bending down a little at the ends. The inflorescence being simply racemose is of indefinite growth, and increases considerably in length as flowering proceeds, till it exceeds twice the length of the purely vegetative part of the stem. The pedicels lengthen from about 1.5 cm. to 2.3 cm. as the fruit matures, and become stouter. The calyx also increases in size with age, and the segments are erect when the corolla has just fallen but spread at right angles to the pedicels when the fruit is nearly mature. The segments are lanceolate, acute at the apex, the adaxial 9 by 2 mm., the abaxial 7 by 2 mm., and the lateral 8 by 2 mm. in the flowering condition. The sizes increase up to 1.2, 1 and 1.1 cm., respectively, in the fruiting stage. The corollas are a clear yellow in colour and 3 to 3.2 cm. in diameter, they are quickly caducous. The lobes are rounded and spread out nearly flat. The filaments are unequal, 5 to 9 mm. long and covered with purple hairs. Three anthers are distinctly reniform, the other two show some variation from flower to flower but are generally partially adnate on one side. The young ovary is almost globose, nearly 2 mm. in diameter and covered with glands; the style is 7 mm. long, with a few shortly stalked glands near the base and glabrous above. The fruit is nearly globose, 6 mm. in diameter, with numerous, distinct, sessile or nearly sessile glands.

**Rumex acetosella** *L.* It is well-known that within this species there are included plants of very different habits and leaf-shapes. Many of these are undoubtedly plants which are merely habitat forms, but there is one condition which is so frequent in South-East Europe and the Orient and which is so very striking when developed in an extreme manner that it calls for more attention, and the following facts indicate that it might form interesting genetical material. The plants referred to are generally named by systematists *R. multifidus* L. Sp.Pl. ed. 2, 482 (1762), pro parte, or *R. acetoselloides* Bal. Bull. Soc. Bot. France i. 282 (1854), or *R. acetosella* var. *multifida* DC. in Lamk. et DC. Fl. Fr. iii. 378 (1815). They are distinguished from the usual North European forms of *R. acetosella* by having the lateral lobes or segments of the leaf divided (or branched). The mode of division is not always the same and in a large mixed collection of specimens (such as those present in the Kew Herbarium) a graduated series from entire to much and deeply divided or branched lateral lobes can be arranged. Often leaves on the same specimen or on plants from or near the same locality show a wide range in this respect. Thus from the Gallipoli Peninsula, Thrace, the specimen *Durham* 20, Kilia, has narrow terminal and lateral segments in the upper leaves, broader ones in the lower leaves, but all quite entire; on the other hand, *Ingoldby* 322, near Gaba Tepe, has large leaves with long narrow

segments, the lateral ones each divided nearly to the base into 2 to 4 lobes. In spite of this the fact remains that most of the specimens from all parts of the Balkan Peninsula which I have seen and many of those from Asia Minor are what I term the var. *multifidus*, while all specimens from northern Europe are either var. *vulgaris* Koch or var. *tenuifolius* Wallr. sensu Asch. u. Graebn. Syn. iv. 786 (1912). The geographical separation of the three varieties is not by any means complete, but on the whole the var. *multifidus* is a Balkan Peninsula-Asia Minor type which extends westward at least to Italy and Sicily.

According to a note by A. Beguinot, Flora Ital. Exsiccata 1445, the var. *multifidus* remains true to its characters under cultivation.

**Jasione Heldreichii** *Boiss. et Orph.* Diagn. II. vi. 120 (1859) is very closely related morphologically to *J. montana*. The principal characters distinguishing it are the narrower bracts, which have more prominent lateral teeth, and together with the apex are often aristate or at least more acuminate than in *J. montana*, and the longer sepals. The geographical areas occupied by *J. montana* and *J. Heldreichii* are quite distinct so far as I have ascertained definitely. I have seen no specimens of the former from the Balkan Peninsula, and of the records of it, most if not all, refer to *J. Heldreichii*. All the Balkan Peninsular specimens at Kew of plants of *Jasione* of this group are *J. Heldreichii* and this species is also represented by typical specimens from the Bithynian Olympus. A single sheet from Mt. Tmolus (*Balansa* 332) is also probably this, but the material available is insufficient for me to be quite certain. *Jasione glabra* Vel. Oesterr. Bot. Zeitschr. xxxiv. 424 (1884) and l.c. xxxvi. 264 (1886), was afterwards [Fl. Bulg. 374 (1891)] reduced by the author to a variety (var. *microcephala*) of *J. Heldreichii*. The latter view is shown to be correct by a series of specimens from the Varna district recently received from Mr. B. Gilliat-Smith, and this year I have had many plants in flower in the Experimental Ground of the Kew Herbarium. All the characters mentioned by Velenovsky are found in varying degrees and in different combinations in a sufficient range of specimens. In the same row of living plants, individuals with and without basal rosettes occur, and it should be noted that these plants were raised from seed and flowered in the one year. The plants are decidedly greener (when alive) and more glabrous than those of this species I have seen growing wild in other parts of the Balkan Peninsula, and for this reason I retain, for the present, the varietal name.

*Jasione montana* has a wide distribution through northern, central and south-western Europe but in south-eastern Europe it is replaced by *J. Heldreichii*.

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## XIV.—MISCELLANEOUS NOTES.

Mr. F. S. Ward, B.S.A., has been appointed by the Secretary of State for the Colonies, Assistant Mycologist, Agricultural Department, Federated Malay States.

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Miss I. C. Verdoorn, of the Division of Botany, Department of Agriculture, Pretoria, has been appointed, by the Government of the Union of South Africa, Assistant for South Africa in the Herbarium at Kew.

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We note with pleasure, in the recent New Year's Honours List, the following appointment :—C.M.G., Mr. S. Simpson, Director of Agriculture, Uganda. Also the following promotions in, and appointments to, the Order of the British Empire, on the occasion of the ending of the British Empire Exhibition :—C.B.E., Mr. A. Holm, Director of Agriculture, Kenya; O.B.E., Mr. A. H. Kirby, Director of Agriculture, Tanganyika Territory, and Mr. E. J. Wortley, M.B.E., Director of Agriculture, Nyasaland Protectorate; M.B.E., Mr. T. D. Maitland, Botanist, Agricultural Department, Uganda, and Mr. W. H. Patterson, Entomologist, Agricultural Department, Gold Coast.

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Joseph Henry Maiden.—The death of Mr. J. H. Maiden, which was recorded in the last number of the Bulletin, took place at Turramurra, near Sydney, on November 16, 1925. Though he had not reached his 67th birthday he had long been regarded as the *doyen* of Australian botanists. For upwards of forty-two years he had been in frequent correspondence with Kew and had always shown himself its loyal and helpful friend.

Mr. Maiden was born at St. John's Wood, London, on April 25th, 1859. His early education was obtained at the City of London Middle Class School, from which he went to the University of London. He was awarded the Fishmongers' Scholarship tenable at the University of Cambridge, but he did not avail himself of this as he preferred to remain in London to continue his studies in the Science School of the London University. He attended Prof. R. Bentley's and Prof. D. Oliver's lectures on botany and thus early in life became associated with a member of the Kew staff, for Prof. Oliver at that time was Keeper of the Herbarium and Library. The delicate state of his health necessitated a suspension of his studies, and he was recommended to take a sea-voyage. Australia was chosen as the destination of the voyage, and in 1880 he arrived there, intending after a while to return to England, and had therefore furnished himself with a return ticket. The return portion of this ticket was never used by Mr. Maiden, for he was so favourably impressed with the country on landing at Sydney, and found that the climate suited him so well, that he decided to make his home in Australia. He does not appear to

have returned to England till twenty years later—in 1900—but in those twenty years he had made for himself a great name among the systematic and economic botanists of the world, and had given to the Sydney Botanic Gardens a position of the greatest importance among the botanical establishments in Australia.

During his early days in Sydney Mr. Maiden was employed in giving popular science lectures for the newly established Board of Technical Education. His lectures were so favourably received that in 1881 he was appointed first Curator of the Technological Museum, Sydney. Shortly after—in August, 1882—he began his correspondence with Kew, and this was continued up to the last few months of his extraordinarily busy life. In 1890 Mr. Maiden wrote "the Museum is up to its neck in debt to Kew." His letters contain many similar expressions, while his offers of material and information and help of various kinds were frequently repeated and accepted, much to the advantage of all the departments at Kew. It was doubtless owing to the valuable experience he gained while in charge of the Technological Museum that Mr. Maiden devoted so much attention to the economic botany of Australia even after he ceased to be Curator, and that so many of his publications relate to plants of industrial importance.

In 1896, Mr. Charles Moore, who had held the offices of Director of the Botanic Gardens, Sydney, and Government Botanist of New South Wales since 1848, retired, and Mr. Maiden was appointed his successor. His official duties ultimately comprised the charge of the Botanic Gardens, Government Domains, Garden Palace Grounds, and Campbelltown State Nursery, as well as those of Government Botanist of the State. He was also Officer-in-Charge of the Centennial Park, Sydney, which, including Queen's Park, consists of 823 acres. He nevertheless found time to travel over much of Australia in search of material and information for the various departments in his charge and the publications he prepared. Much of this travelling was done at his own expense. A trip of three months to Western Australia cost him £400. He was one of the most productive of botanical authors, and in several capacities assisted the scientific societies of New South Wales and the Australasian Association for the Advancement of Science. But Mr. Maiden found great pleasure in work of many kinds, and there seemed to be no limit to his activities. "I have been as busy as a bee," he wrote a little more than a year ago, and so apparently could he have written of his whole life. He was unmistakably a man of great energy, full of enthusiasm, reasonably proud of his knowledge and achievements, and strongly influenced by the desire to leave the world, and especially the botanical world of Australia, better for his being in it. Social duties were not ignored, and for many years he was engaged as a worker in the Cathedral Parish of St. Andrew's, Sydney, of which he was a churchwarden.

In 1901, Mr. Maiden had the satisfaction of seeing the completion

of the new buildings in the Botanic Gardens, including the Botanical Museum, said to be the first strictly botanical museum established in Australia, and the National Herbarium.

The centenary of the Sydney Botanic Gardens was celebrated in July, 1916, and during that year, as some recognition and appreciation of his many and valuable services to his adopted country and of his scientific work, Mr. Maiden was appointed to the Imperial Service Order. In the same year he was elected a Fellow of the Royal Society. In 1915 he was awarded the Gold Medal of the Linnean Society of London, to which he was elected as a Fellow in 1888. This was the first occasion on which the medal had gone to one of the great Dominions. Among other honours he received were the Mueller Medal from the Australasian Association for the Advancement of Science, in 1922, and the Clarke Memorial Medal from the Royal Society of New South Wales, in 1924. In the latter year, having reached the age-limit, he retired, and took up his residence at Turramurra, near Sydney, and, released from his many official duties, it was his intention to devote his time to the completion of his great work on *Eucalyptus*, while keeping himself in close touch with other botanical interests. We cannot but regret that retirement for him has been so brief and that far too soon his life of usefulness is ended.

Apart from his contributions to journals and to the publications of the various scientific societies in Australia, which cannot be far short of 300, including several written in collaboration with others, Mr. Maiden produced numerous independent works which are likely to have a permanent value. His first book was "The useful native plants of Australia (including Tasmania)," published in 1889. "Wattles and wattle-barks" has appeared in three editions, 1890, 1891 and 1906. "A bibliography of Australian economic botany" was published in 1892, and "A manual of the grasses of New South Wales" in 1898. "The forest flora of New South Wales" (1902–24) consists of eight quarto volumes containing 295 plates, with text. His greatest published work, "A critical revision of the genus *Eucalyptus*," the first part of which was issued in 1903, is now in its 64th part, which was received at Kew in July, 1925. Writing to Kew in October, 1924, Mr. Maiden said he wanted to finish the work in about seventy parts, and would then submit a key to the species, which he estimated to be about 350. Apparently nearly the whole of the remainder of the manuscript of the Revision was ready for the printer more than a year ago.

"A census of New South Wales plants," by Mr. Maiden and Mr. E. Betche, was published in 1916, and "Some of the principal commercial trees of New South Wales" in 1917.

Mr. Maiden published several papers on Australian explorers and botanists and others who in some way assisted the progress of botany in the continent, and he devoted a volume to "Sir Joseph Banks: the 'Father of Australia'," which was issued in 1909.

It is hoped that an autobiography which Mr. Maiden contem-

plated was so far completed at the time of his death that its publication will be possible.

A portrait of Mr. Maiden, reproduced from a photograph taken in August, 1924, was published in the *Gardeners' Chronicle* of December 13th, 1924, p. 400.

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**Botanical Magazine.** -Part II of Vol. cli (1925) has now been issued and contains the following illustrations :—*Clerodendron Colebrookianum* Walp. (t. 9082), from India; *Rhododendron anthosphaerum* Diels (t. 9083), a native of North-West Yunnan; *Roscoea cautleoides* Gagnep. (t. 9084), also a native of North-West Yunnan; *Buddlea alternifolia* Max. (t. 9085), from South-eastern Kansu, China; *Catasetum tenebrosum* Kranzl. (t. 9086), a native of Peru; *Malvastrum hypomadarum* Sprague (t. 9087), a plant only known in cultivation and possibly of hybrid origin; *Aconitum anglicum* Stapf (t. 9088), a new species, found in the South West and West of England and in East Wales; *Berberis Vernae* C. Schneider (t. 9089), from West Kansu and North Szechuan; *Itea ilicifolia* Oliv. (t. 9090), from Central China; *Papaver commutatum* Fisch. & Meyer (t. 9091), a native of the Caucasus and the Orient, and *Geranium Farreri* Stapf (t. 9092), a new species collected by the late Reginald Farrer at Min-shan, on the border of Kansu and Szechuan.

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**The Forest Trust, British Honduras.**—The Report of the Forest Trust, 1925, states that the appointment of Overseer of the Botanic Station was terminated and that the supervision of the Station has been placed under the Assistant Conservator of Forests, Northern Districts. This Station, originally established in 1892 in the grounds of Government House, but subsequently moved to Stann Creek district, owed its origin to the efforts of the Governor, Sir Alfred Moloney, K.C.M.G., whose object it was to provide "a distributing centre of economic plants of marketable value, where the wants of small and extensive cultivators could be met" (*K.B.* 1896, 103).

The situation of the station, some eight miles from Belize, has not been advantageous, however, in bringing the experimental botanic work of both forest and agricultural interest to the public eye, as the only convenient means of approach has been by river, and consequently visitors to the gardens have not been so many as would no doubt have been the case had the site been more accessible.

In 1922, with the appointment of Mr. Hummel as Conservator of Forests, the administration of the Station was taken over by the Forestry Department, and it has since served mainly as a forest experimental station. It is now controlled directly by the Forest Trust, and although the ornamental part of this station has been maintained and improved, an effort has been made to give more prominence to the Forest Section in which the chief experiments

are being carried out. The educational value of this work is amply demonstrated.

The Forest Trust, which now controls the Station, is unique among the forestry administrations in the British Empire. Mr. Hummel in his Report on the Forests of British Honduras, 1922, pointed out that the greater part of the revenue derived from forest industry was not credited as direct forest revenue, and he accordingly devised a scheme by which an increasing proportion of such revenue, eventually reaching a maximum of 60 per cent., should be allocated for the use of the forest service. This scheme with subsequent modifications is now in force. A percentage of the actual forest revenue under predetermined subheads, together with any surplus revenue over the total of $60,000, is directly credited to the Forest Service. Until the maximum contribution under this Scheme has been reached any further requirements of this Service are met from a Forest Loan of $250,000 specifically raised for this purpose. The administration of these funds and the approval of the general forest policy of the country are under the direction of the Forest Trust, composed of the Governor as Chairman and two official and two unofficial members appointed by the Governor.

This particular manner of providing for the forest service of the country has been specially designed for British Honduras, whose main source of revenue, directly and indirectly, is obtained from the natural forests. The exploitation of the natural forest resources has for a long period been going on unchecked and until recently no replacement has been attempted.

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**Sibthorp in the Gallipoli Peninsula.**—In *Kew Bulletin*, 1924, p. 287, an attempt was made to summarize the botanical collecting that had been done in the Gallipoli Peninsula and the near-lying parts of Thrace. I carefully read the available accounts of Sibthorp's journeys and found no evidence that he had botanized on the European side of the Dardanelles. However, while recently studying the distribution of the *Thymelaeaceae* of the Near East, I noted that on p. 258 of Sibthorp and Smith's Prodromus it is recorded that Sibthorp collected *Daphne Tartonraira* (*Thymelaea tartonraira*) "prope Sestum ad Pontum Euxinum." Further investigations also showed that *Crocus aureus* and *Cerastium pentandrum* were stated (l.c. pp. 24, 316) to have been collected near Sestus. The only Sestus, or Sestos, I know or have traced is the ancient and once famous town on the Gallipoli Peninsula, opposite Abydos. The *Crocus aureus* is given as flowering in March, and it was probably in the spring that Sibthorp crossed the Narrows and landed on the Peninsula, possibly for a very short time. We know that he was at Abydos and that he collected many plants in north-west Asia Minor. It is somewhat strange and misleading that the Hellespont (Dardanelles) should be termed the Pontus Euxinus.

W. B. TURRILL.

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**Methods of Descriptive Systematic Botany.***—As Prof. Hitchcock remarks in his preface, descriptive taxonomy at the present day may be likened to a craft in which the technique has not been committed to writing but is handed down by tradition. Alphonse De Candolle's "La Phytographie" (1880), the only work hitherto devoted to the subject, is now out of date, many new problems and methods having arisen since its publication.

The first part (pp. 1–42) of Prof. Hitchcock's book deals with the elements of descriptive taxonomy, and is followed by chapters on "The Preparation of a Local Flora", "Field, Herbarium and Library", "The Preparation of a Flora or Manual", "The Preparation of a Revision of a Taxonomic Group", "Keys and Synopses", "Publication of Groups", "Homonyms and Synonyms", "Types", and "Codes of Nomenclature". Supplementary chapters deal with "The Grass Herbarium" [of the United States National Museum], "Travelling in Tropical America", and "Miscellaneous Notes". "Rules for Bibliographic Abbreviations" and the text of the "Type-basis Code of Botanical Nomenclature" are given in an Appendix.

The book should be read not only by all beginners in Systematic Botany, but more especially by advanced students, as a preliminary to original taxonomic work. Attention to its recommendations will go far towards eliminating the technical blemishes which too often disfigure a first "Revision". Even an experienced systematist may have something to learn from the chapters on Nomenclature. This subject is treated at considerable length and very clearly, but with a distinct bias in favour of the Type-basis Code. This is apparent in the discussion of the "Chief Differences between the Type-basis Code and the International Rules" (pp. 162–5). One of the fundamental principles of botanical nomenclature is that no *name* of a group should be regarded as effectively published unless it is accompanied by, or is associable with a *description* of that group. This principle is violated by Art. 2 of the Type-basis Code, under which the mere mention of one or more described *species* (with binary names) is sufficient to validate a new *generic name*, even though the author of the name has not given a description of the new genus, nor stated how it differs from previously described genera. This defect of the Code is not indicated by Prof. Hitchcock, who merely says "The Rules do not admit effective publication in such a case" without giving the reason. At the same time, however, he points out the defect in the International Rules, Art. 38, under which the publication of a generic name is effective even though no species are assigned to the genus. For the proper characterization of a genus both a generic description (as required by the Rules) and a mention of included species (as required by the Code) are necessary. T. A. S.

* By A. S. Hitchcock. 8vo. Pp. vii+216. New York: John Wiley & Sons. London: Chapman & Hall. 1925. Price 12s. 6d. net.

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PLATE VII.

Cupressus Leylandii.

*To face page* 113.]